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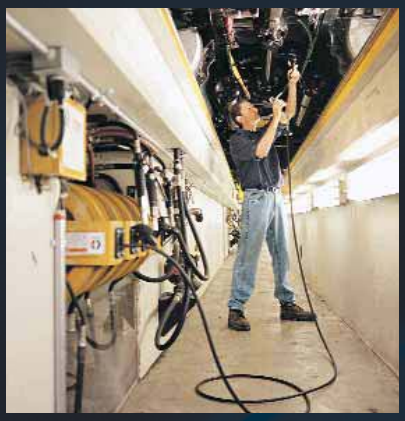

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Oil Pumps
Quick Selection Guide

1

Pump	Fast-Ball 1:1	Mini Fire-Ball 225, 3:1	Fire-Ball 300, 5:1
Line Length‡	Up to 100 ft (30.5 m)	Up to 250 ft (76.2 m)	Up to 500 ft (152.5 m)
Dispense Points *(simultaneous)*	1*	1 to 2	1 to 3
Annual Usage	Up to 5,000 gal (19,000 l)	6,500 gal (24,602 l)	Up to 30,000 gal (114,000 l)
Typical Application	• Service Shops	• Service Shops • Auto Dealers	• Service Shops • Construction Equipt. Maintenance • Service Shops • Fast Lubes • Fleet
Reference Pages *for Pumps & Packages*	8-9	10-11	12-13

‡ Consult your local authorized Graco representative for line or pipe sizing
** Not recommended with hose reel*

Oil Pumps
Quick Selection Guide

Pump	Fire-Ball 425, 3:1	Fire-Ball 425, 6:1	Fire-Ball 425, 10:1
Line Length‡	Up to 250 ft (76.2 m)	Up to 500 ft (152.5 m)	Up to 750 ft (22.8 m)
Dispense Points *(simultaneous)*	3 to 4	3 to 4	3 to 4
Annual Usage	Over 30,000 gal (114,000 l)	Over 30,000 gal (114,000 l)	Over 30,000 gal (114,000 l)
Typical Application	• Large Fleet • Auto Dealers • Construction Equipt. Maintenance • In-Plant • Fast Lubes	• Auto Dealers • Construction Equipt. Maintenance • In-Plant • Fast Lubes	• Large Fleet • Auto Dealers • Construction Equipt. Maintenance • In-Plant • Fast Lubes
Reference Pages *for Pumps & Packages*	14	15	16-17

‡ Consult your local authorized Graco representative for line or pipe sizing

Fast-Ball™ 1:1
Air-Operated Piston Pumps

1

Features and Benefits
- In-line design with fewer parts for less pump wear
- Differential air motor ensures smooth pumping
- Double-acting pump provides reliable fluid flow

Typical Application
- Lubricant transfer
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled*
- Petroleum and synthetic based oils

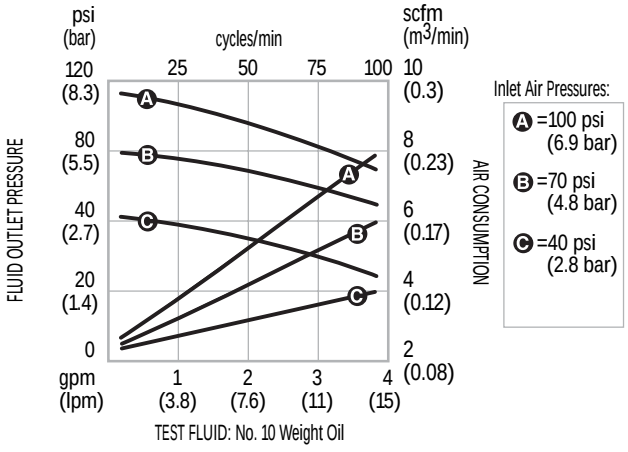
**See page 56 for 1:1 Fast-Flo Transfer Pumps for non-petroleum-based products*

222051

Technical Specifications

Maximum Fluid Pressure	180 psi (12.5 bar)
Air Motor Effective Diameter	1.4 in (35.6 mm)
Operating Range	40-180 psi (2.7-12.5 bar)
Continuous Duty Flow Rate	5 gpm (19 lpm)
Approx. Air Consumption @100 psi (7 bar)	5 cfm
Air Inlet	1/4 npt(f)
Material Outlet	3/4 npt(f)
Material Inlet	1-1/2 npt(f)
Wetted Parts	CS, Polyurethane
Instruction Manual	307906

Pump Performance



TEST FLUID: No. 10 Weight Oil

Fast-Ball 1:1 Packages
Air-Operated Piston Pumps

	Non-Metered Dispense Package	U.S./Metric Metered Dispense Package	Bung-Mounted	Bung-Mounted	Universal
Container Size	55 gal (200 l)	55 gal (200 l)	55 gal (200 l)	275 gal (1040 l)	Universal
Package No.	**222602**	**239702**	**222103**	**222104**	**222051**
Pump	222103	222103	222103	222104	222051
Dispense Kit	218115	239703	–	–	–
Regulator Assembly	218316	218316	–	–	–
Hose	109125	–	–	–	–
Hose Length	6 ft (1.8 m)	–	–	–	–
Bung Adapter	222308	222308	222308	222308	–
Instruction Manual	307637	307637	307906	307906	307906

222602

239702

222103

222104

222051

Mini Fire-Ball® 225, 3:1
Air-Operated Piston Pumps

1

Features and Benefits
- Non-corrosive design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact means longer pump life and ensures pump will withstand harsh environments
- Double-acting pump provides reliable fluid flow
- Few moving parts translates into low maintenance and low cost of ownership
- Open exhaust port provides continuous operation without icing

246775

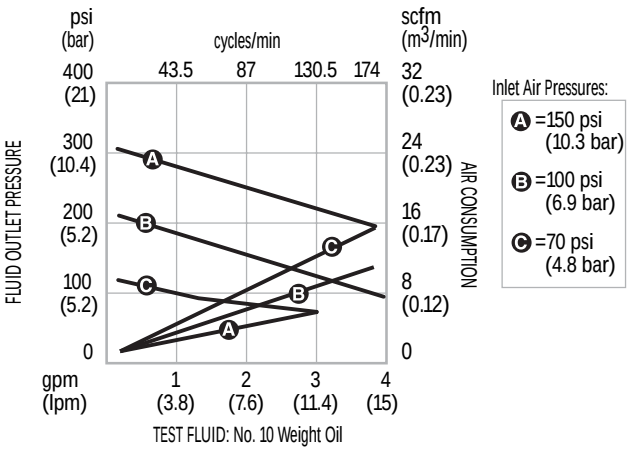
Typical Application
- Medium to low volume and pressure lubricant transfer
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Petroleum and synthetic based oils

Technical Specifications

Cycles/gallon (cycles/liter)	43.5 (11.4)
Fluid flow @ 80 cpm (gpm/lpm)	1.84 (7.0)
Maximum fluid pressure	540 psi (37 bar, 3.7 MPa)
Air motor effective diameter	2.25 in (57.2 mm)
Air operating range	40-180 psi 2.8-12 bar (0.28-1.2 MPa)
Approx air consumption and fluid flow @ 100 psi air and 80 cpm	8.5 scfm @ 2.1 gpm (.241 m^3/min @ 7.9 lpm)
Wetted materials	steel, polyurethane, aluminum, buna-N, Rulon®
Air inlet port size	3/8 npt(f)
Fluid inlet port size	1-1/2 npt(f)
Fluid outlet port size	1/2 npt(f)
Instruction Manual	309869

Pump Performance

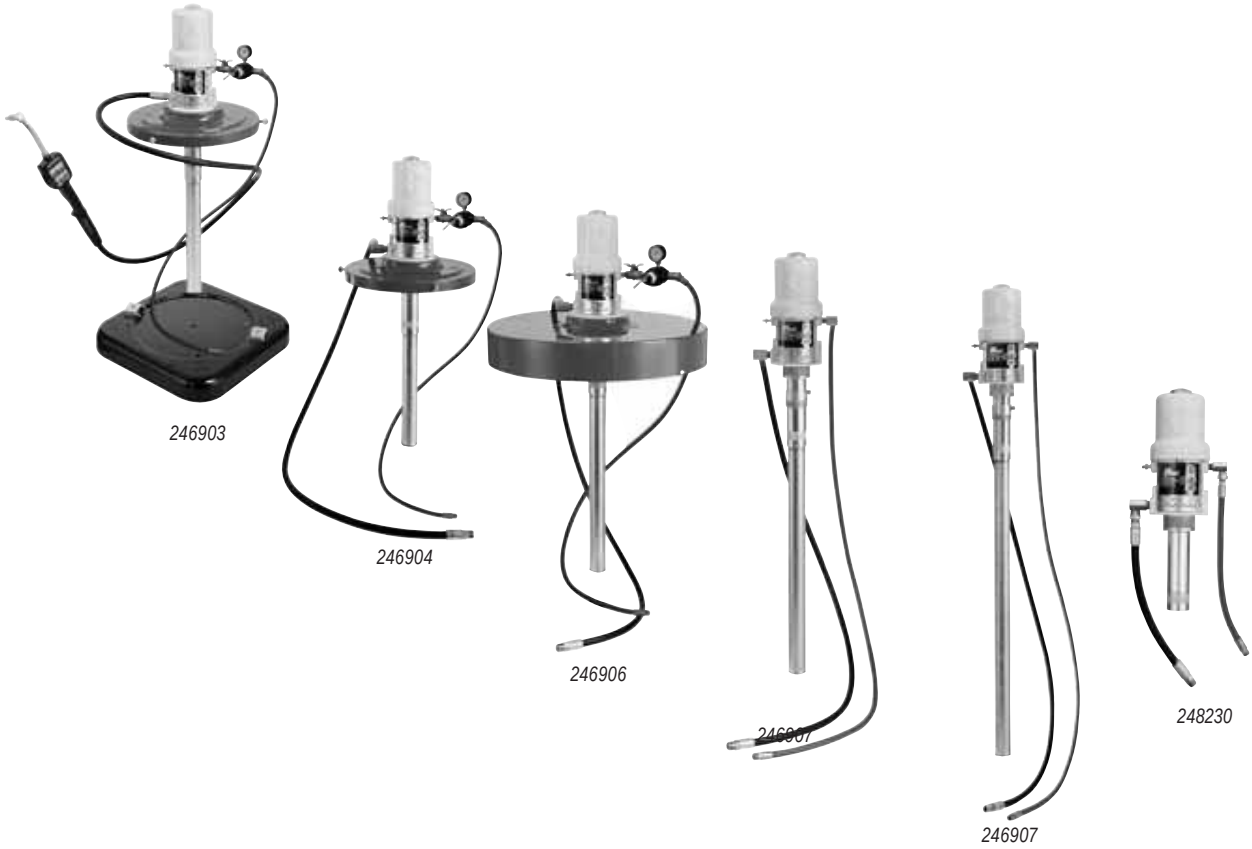


TEST FLUID: No. 10 Weight Oil

Mini Fire-Ball 225, 3:1 Packages
Air-Operated Piston Pumps

	Portable Package	Cover-Mounted Package	Cover-Mounted Package	Bung-Mounted Package	Bung-Mounted Package	Universal Package
Ratio	3:1	3:1	3:1	3:1	3:1	3:1
Container Size	16 gal (60 l)	16 gal (60 l)	55 gal (200 l)	55 gal (200 l)	275 gal (1040 l)	Universal
Fire-Ball 225 Package No.	**246903‡**	**246904‡**	**246906‡**	**246907*‡**	**246907*‡**	**248230*‡**
Fire-Ball 225 Bare Pump*	248097	248097	248097	248097	248097	246775
Dispense/Hose Fitting Kit	237075	222063	222063	222063	222063	222062
Fluid Hose	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	1.5 ft x 1/2 in (0.5 m x 12.7 mm)
Air Hose	–	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)	1.5 ft x 3/8 in (0.5 m x 9.5 mm)
Air Regulator	224512	224512	224512	–	–	–
Cover	204574	204574	200326	–	–	–
Bung Adapter	–	–	–	222308	222308	–
Caster Base	203622	–	–	–	–	–
Instruction Manual	309868	309868	309868	309868	309868	309868

**248097 includes suction tube and bung adapter*



** Use 3/8 in (9.5 mm) air regulator 109075 as required; must be ordered separately*
‡ Order low-level cut-off 203688 separately for metered dispense systems

Fire-Ball® 300, 5:1
Air-Operated Piston Pumps

1

Features and Benefits

- Non-corrosive design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact means longer pump life and ensures pump will withstand harsh environments
- Double-acting pump provides reliable fluid flow
- Few moving parts translates into low maintenance and low cost of ownership
- Open exhaust port provides continuous operation without icing

203876

Typical Application

- Medium to high volume lubricant transfer for multiple metered dispense points
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

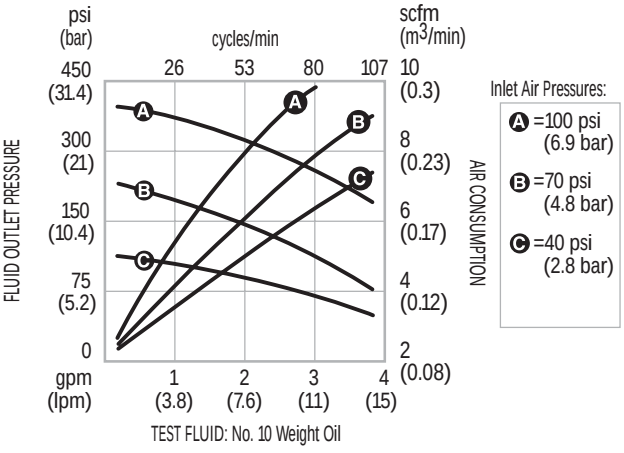
Typical Fluids Handled

- Petroleum and synthetic based oils

Technical Specifications

Cycles/gallon (cycles/liter)	28.4 (8.6)
Fluid flow @ 80 cpm (gpm/lpm)	2.8 (9.3)
Maximum fluid pressure	900 psi (62 bar, 6.2 MPa)
Air motor effective diameter	3 in (76.2 mm)
Air operating range	40-180 psi 2.8-12 bar (0.28-1.2 MPa)
Approx air consumption and fluid flow @ 100 psi air and 80 cpm	27 scfm @ 3 gpm (.765 m^3/min @ 11.5 lpm)
Wetted materials	steel, polyurethane, aluminum, buna-N
Air inlet port size	3/8 npt(f)
Fluid inlet port size	1-1/2 npt(f)
Fluid outlet port size	1/2 npt(f)
Instruction Manual	309869

Pump Performance



TEST FLUID: No. 10 Weight Oil

Fire-Ball 300, 5:1 Packages
Air-Operated Piston Pumps

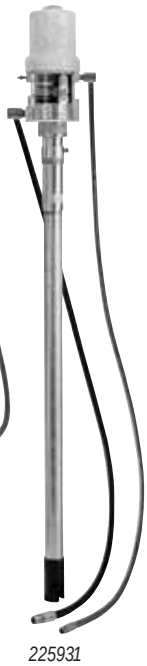
	Portable Package	Cover-Mounted Package	Cover-Mounted Package	Bung-Mounted Package	Bung-Mounted Package	Universal Package
Container Size	16 gal (60 l)	16 gal (60 l)	55 gal (200 l)	55 gal (200 l)	275 gal (1040 l)	Universal
Package No.	**225728*‡**	**225094**‡**	**225642**‡**	**225640**‡**	**225931**‡**	**225852**‡**
Pump	203872	203872	203857	204254	222087	203876
Dispense/Hose Fitting Kit	237075	222063	222063	222063	222063	222062
Fluid Hose	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	1.5 ft x 1/2 in (0.5 m x 12.7 mm)
Air Hose	–	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)	1.5 ft x 3/8 in (0.5 m x 9.5 mm)
Air Regulator	224512	224512	224512	–	–	–
Cover	204574	204574	200326	–	–	–
Bung Adapter	–	–	–	222308	222308	–
Caster Base	203622	–	–	–	–	–
Instruction Manual	307884	307883	307883	307883	307883	306520

225728

225094

225642

225640



225931

225852

For Fire-Ball 300, 5:1 Lube Truck Packages, see page 150.

** Use 3/8 in (9.5 mm) installation kit (224512) as required*

*** Use 3/8 in (9.5 mm) air regulator (109075) as required; must be ordered separately (see page 128)*

‡ Order low-level cut-off (203688) separately for metered dispense systems

Fire-Ball® 425, 3:1
Air-Operated Piston Pumps

1

Features and Benefits
- Non-corrosive design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact means longer pump life and enables the pump to be used in harsh environments
- Double-acting pump provides reliable fluid flow
- Few moving parts translates into low maintenance and low cost of ownership

Typical Application
- High volume, medium pressure lubricant transfer
- Automotive dealerships
- Heavy duty dealerships
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Petroleum and synthetic based oils

237526

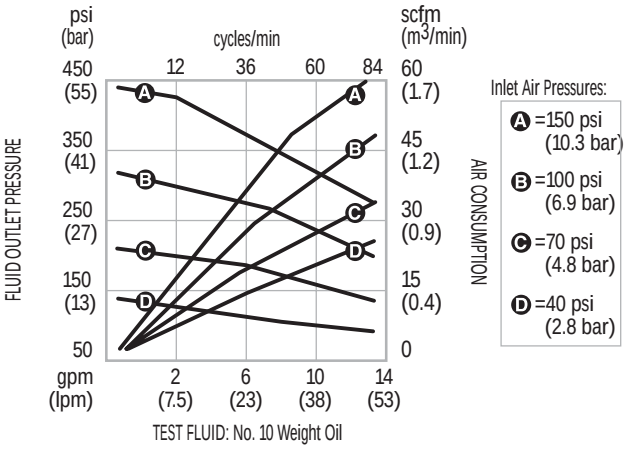
Wall Mount Package #244846 includes:
- *237526 Pump*
- *217072 Filter Regulator*
- *222068 Hose and Fitting Kit*
- *110225 Air Shutoff Valve*
- *108537 Fluid Shutoff*
- *238245 Wall Mount Bracket*

see page 148-149 for larger volume packages

Technical Specifications

Cycles/gallon (cycles/liter)	6 (1.6)
Fluid flow @ 80 cpm (gpm/lpm)	13.4 (50.6)
Maximum fluid pressure	540 psi (37 bar, 3.7 MPa)
Air motor effective diameter	4.25 in (107.9 mm)
Air operating range	40-180 psi 2.8-12 bar (0.28-1.2 MPa)
Approx air consumption and fluid flow @ 100 psi air and 80 cpm	58 scfm @ 13.4 gpm (1.64 m^3/min @ 50.6 lpm)
Wetted materials	steel, polyurethane, aluminum, nitrile
Air inlet port size	1/2 npt(f)
Fluid inlet port size	1-1/2 npt(f)
Fluid outlet port size	3/4 npt(f)
Instruction Manual	309869

Pump Performance



TEST FLUID: No. 10 Weight Oil

Fire-Ball 425, 6:1
Air-Operated Piston Pumps

Features and Benefits
- Non-corrosive design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact means longer pump life and enables the pump to be used in harsh environments
- Double-acting pump provides reliable fluid flow
- Few moving parts translates into low maintenance and low cost of ownership

Typical Application
- High volume, moderate pressure lubricant transfer
- Automotive dealerships
- Heavy duty dealerships
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Petroleum and synthetic based oils

238108

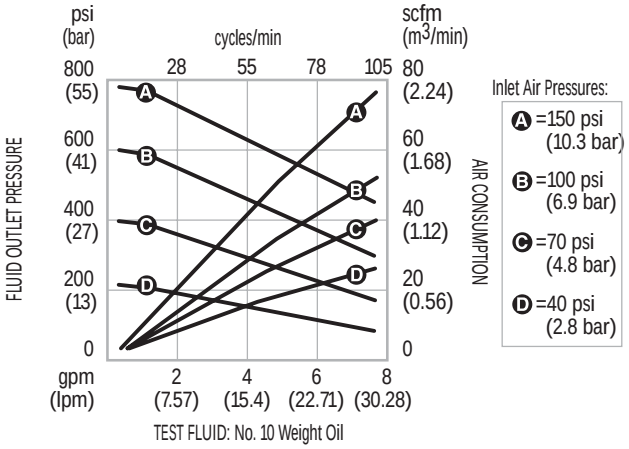
Wall Mount Package #244628 includes:
- *238108 Fire-Ball 425, 6:1 Pump*
- *222068 Hose and Fitting Kit*
- *217072 Filter Regulator Lubricator*
- *110225 Air Shutoff Valve*
- *108537 Fluid Shutoff Valve*
- *238245 Wall Mount Bracket*

see page 148-149 for larger volume packages

Technical Specifications

Cycles/gallon (cycles/liter)	12 (3.2)
Fluid flow @ 80 cpm (gpm/lpm)	6.6 (25.3)
Maximum fluid pressure	1100 psi (76 bar, 7.6 MPa)
Air motor effective diameter	4.25 in (107.9 mm)
Air operating range	40-180 psi 2.8-12 bar (0.28-1.2 MPa)
Approx air consumption and fluid flow @ 100 psi air and 80 cpm	49.5 scfm @ 6.8 gpm (.334 m^3/min @ 25.7 lpm)
Wetted materials	steel, polyurethane, aluminum, nitrile
Air inlet port size	1/2 npt(f)
Fluid inlet port size	1-1/2 npt(f)
Fluid outlet port size	3/4 npt(f)
Instruction Manual	309869

Pump Performance



TEST FLUID: No. 10 Weight Oil

Fire-Ball® 425, 10:1
Air-Operated Piston Pumps

1

Features and Benefits
- Non-corrosive design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact means longer pump life and enables the pump to be used in harsh environments
- Double-acting pump provides reliable fluid flow
- Few moving parts translates into low maintenance and low cost of ownership

205626

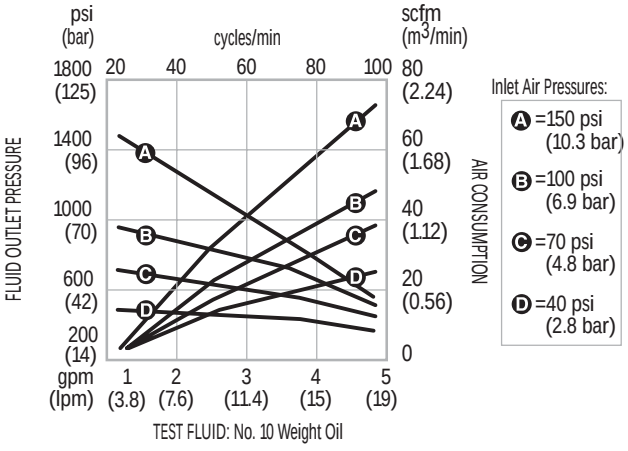
Typical Application
- High volume, moderate pressure lubricant transfer
- Automotive dealerships
- Heavy duty dealerships
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Petroleum and synthetic based oils

Technical Specifications

Cycles/gallon (cycles/liter)	19.6 (5.2)
Fluid flow @ 80 cpm (gpm/lpm)	4.1 (15.4)
Maximum fluid pressure	1800 psi (124 bar, 12.4 MPa)
Air motor effective diameter	4.25 in (107.9 mm)
Air operating range	40-180 psi 2.8-12 bar (0.28-1.2 MPa)
Approx air consumption and fluid flow @ 100 psi air and 80 cpm	32 scfm @ 4.1 gpm (.555 m^3/min @ 15.4 lpm)
Wetted materials	steel, polyurethane, aluminum, nitrile
Air inlet port size	1/2 npt(f)
Fluid inlet port size	1-1/2 npt(f)
Fluid outlet port size	3/4 npt(f)
Instruction Manual	309869

Pump Performance



TEST FLUID: No. 10 Weight Oil

Fire-Ball 425, 10:1 Packages
Air-Operated Piston Pumps

	Cover-Mounted Package	Bung-Mounted Package	Universal Supply Package	Wall Mount Package
Container Size	55 gal (200 l)	55 gal (200 l)	Universal	Universal
Package No.	**225782*‡**	**225786*‡**	**225853*‡**	**244847**
Pump No.	222065	222095	205626	205626
Hose/Fitting Kit	222066	222066	222068	222068
Fluid Hose	6 ft x 3/4 in (1.8 m x 19.05 mm)	6 ft x 3/4 in (1.8 m x 19.05 mm)	1.5 ft x 3/4 in (0.5 m x 19.05 mm)	1.5 ft x 3/4 in (0.5 m x 19.05 mm)
Air Hose	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	1.5 ft x 1/2 in (0.5 m x 12.7 mm)	1.5 ft x 1/2 in (0.5 m x 12.7 mm)
Cover	200326	–	–	–
Filter Regulator	–	–	–	217072
Air Shutoff Valve	–	–	–	110225
Fluid Shutoff Valve	–	–	–	108537
Wall Mount Bracket	–	–	–	238245
Instruction Manual	307883	307883	306520	309351

225782

225786

225853

For 10:1 Fire-Ball 425 Lube Truck Packages, see page 150 and 151. For other wall mount packages, see page 149
** Use 1/2 in (12.7 mm) air regulator #104266 and air pressure gauge #100960 as required; must be ordered separately*
‡ Order low-level cut off #203688 separately for metered dispense systems

Oil Accessories

Air-Operated Piston Pumps and Packages

1

Ordering Information

Hose and Fittings Kits for Fast-Flo 1:1 Pumps

222118 18 in (0.5 m) for connecting wall-mounted Fast-Flo 1:1 pumps to piping. Includes: air hose (109123) with swivel elbow (155541), fluid hose (109108) with swivel elbow (160327).

222119 6 ft (1.8 m) for use with drum-mounted Fast-Flo 1:1 pumps. Includes: air hose (109125) with swivel elbow (155541), fluid hose (109105) with swivel elbow (160327).

Hose and Fittings Kits for Mini Fire-Ball 225, 3:1 and Fire-Ball 300, 5:1 Pumps

222062 18 in (0.5 m) for connecting wall-mounted Mini Fire-Ball 225, 3:1 and Fire-Ball 300, 5:1 pumps to piping. Includes: air hose (204560) with swivel elbow (155494), fluid hose (220598) with swivel elbow (155470). Instruction manual 306520.

222063 6 ft (1.8 m) For use with drum-mounted Mini Fire-Ball 225, 3:1 and Fire-Ball 300, 5:1 pumps. Includes: air hose (203320) with swivel elbow (155494), fluid hose (220591) with swivel elbow (155470). Instruction manual 307883.

Dispense Kits for Mini Fire-Ball 225, 3:1 and Fire-Ball 300, 5:1 Pumps

239704 6 ft (1.8 m) For use with portable lubricators powered by the Mini Fire-Ball 225, 3:1. Includes: fluid hose (220591), dispense valve (222412) and electronic meter (239824). Instruction manual 308382.

237075 6 ft (1.8 m) For use with portable lubricators powered by the Fire-Ball 300, 5:1. Includes: fluid hose (220591) and EM5 gear lube valve (238463). Instruction manual: 307884.

Hose and Fittings Kits for Fire-Ball 425, 3:1, 6:1 and 10:1

222068 18 in (0.5 m) For connecting wall-mounted Fire-Ball 425, 10:1 pumps to piping. Includes: air hose (218093) with swivel elbow (155470), fluid hose (109108) with swivel elbow (160327). Instruction manual: 306520.

238246 24 in (0.6 m) For use with Fire-Ball 425, 3:1 and 6:1 wall-mounted pumps to piping. Includes: air hose (218093) with swivel elbow (155470), fluid hose (238247) with swivel elbow (160327). Instruction manual: 308483.

222066 6 ft (1.8 m) For use with drum-mounted Fire-Ball 425, 10:1 pumps. Includes: air hose (205418) with swivel elbow (155470), fluid hose (109105) with swivel elbow (160327). Instruction manual: 307883.

236054 Suction Kits

6 ft (1.8 m) Suction Kit for 55-gal. (200 l) drums. Includes: 55-gal. (200 l) drum tube, bung adapter and 6 ft (1.8 m) of 3/4 in fluid hose with 3/4 in ID x 1-1/2 in bushing to adapt to any universal Graco oil pump. Allows use of Fast-Ball 1:1, Mini Fire-Ball 225, 3:1, Fire-Ball 300, 5:1 or Fire-Ball 425, 10:1 universal pumps with barrels. Wall brackets must be ordered separately. Use with low-level cut-off (203688) when metering fluids. Instruction manual: 308335.

Oil Accessories

Air-Operated Piston Pumps and Packages

Drum Covers

200326 Cover for open-head 55 gal (200 l) drums. Use with any Mini Fire-Ball 225, 3:1, Fire-Ball 300, 5:1 or Fire-Ball 425, 10:1 pump. Use adapter #160754 for cover-mounting bung-style pumps.

200326

204574 Cover for open-head 16 gal (60 l) or 70 lb (32 kg) drums. Mounts Fast-Ball 1:1, Falcon or Fire-Ball pumps.

222058 Cover for 5 gal (20 l) pails. Mounts Fast-Ball 1:1, Mini Fire-Ball 225, 3:1, Fire-Ball 300, 5:1 and 15:1 pumps. Includes bung-adapter plate (160754).

204574

160754 Bung-adapter plate for 55 gal (200 l) or 16 gal (60 l) covers. Mounts to 55 gallon (400 lb; 200 l), 16 gal (120 lb; 60 l) drum or 5 gal (20 1) pail covers and converts mounting to standard 2 npt bung opening. Allows use of bung-mounted pumps with drum covers.

160754

Wall-Mounting Brackets

203987 For universal Fast-Ball 1:1, Mini Fire-Ball 225, 3:1, Fire-Ball 300, 5:1 and Fire-Ball 425, 10:1 pumps. Clamps onto universal pump tube.

203987

238245 For use with Fire-Ball 425, 3:1, 6:1 and 10:1 pumps. Shelf bracket. Mounts directly to pump flange.

236778 For use with Fire-Ball 425, 3:1, Dyna-Star 1/4:1 and Power-Star 1:1 pumps. Clamps to pump tube and provides mounting to wall surface by flange.

Clamps

203156 Open-drum pump clamp. Attaches to side of open-head drum and mounts on any size pump except Fire-Ball 425, 3:1.

203156

210880 Open-drum pump clamp for Fire-Ball 300, 5:1 and Fire-Ball 425, 10:1 pumps. Clamps onto pump tube and attaches to open-drum lip.

210880

Oil Accessories

Air-Operated Piston Pumps and Packages

1

Carts

203650 Cart for 5, 10 and 16 gal (20, 40, and 60 l) drums. Drums fit into recess on formed base. Rim clamps secure drum to cart. Use with pail clamp (159952) when using cart with 5 gal (20 l) pails.

222243 Heavy-Duty Cart with Pneumatic Wheels for 120 lb (55 kg) drums. Used for moving lubrication equipment over rough terrain. Requires: Hold down kit (222061).

111470 55 gal (200 l) Drum Truck. Heavy-duty drum truck secures 55 gal (200 l) drum on roll-around base.

111470

203650

Portable Bases

205054 Band Dolly for 5 gal (20 l) pails (11-1/2 in ID)

204144 Band Dolly for 10 and 16 gal (40 and 60 l) drums (14 in ID)

203622 Caster Base for 5, 10 and 16 gal (20, 40 and 60 l) drums

204144

Drum Elevator

241663 Air-powered elevator to speed-up 55 gal (200 l) drum changes. Maximum raised height: 39.5 in (100.3 cm). Includes: cover support (207562), drum elevator (204385), and air control kit (207561).

203622

Suction Tubes For Pumps

238592 **For 16 gal (60 l) Cover-Mounted Fast-Ball 1:1, Mini Fire-Ball 225, 3:1, Fire-Ball 300, 5:1 and Fire-Ball 425, 10:1 Pumps**
Use bung adapter #222308 on all current production models)
Includes: 191126 14-1/2 in (0.36 m) extension
110127 Foot spacer

238593 **For 55-gal (200 l) Cover-Mounted Pumps**
Includes: 191128 21-3/4 in (0.55 m) extension
110127 Foot spacer

238595 **For 55 gal (200 l) Bung-Mounted Fast-Ball 1:1, Mini Fire-Ball 225, 3:1, Fire-Ball 300, 5:1 and Fire-Ball 425, 10:1 Pumps**
Use bung adapter #222308 on all current production models)
Includes: 191130 26 in (0.66 m) extension
110127 Foot spacer

238596 **For 275-gal (1100 l) Bung-Mounted Pumps**
Includes: 191131 36 in (0.91 m) extension
110127 Foot spacer

15C502 **Universal Down Tube**
1-1/2 in tube marked for standard container lengths from 20 in (0.51 m) to 41 in (1.04 m)

241663

Oil Accessories
Air-Operated Piston Pumps and Packages

Bung Adapters

222308 **For Fast-Ball 1:1; Mini Fire-Ball 225, 3:1; Fire-Ball 300, 5:1; and Fire-Ball 425, 10:1 Pumps**
Allows direct mounting of all universal length and extended Fast-Ball 1:1, Mini Fire-Ball 225, 3:1, Fire-Ball 300, 5:1 and Fire-Ball 425, 10:1 pumps into standard 2 npt drum bung.

238125 **For Mini Fire-Ball 225, 3:1; Fire-Ball 300, 5:1; and the Fire-Ball 425, 10:1**
Includes double tap bushing (191075), 1 ft 3/8 in hose (238370), and 90º 3/8 in adapter (155494) for mounting universal pumps to tanks (see 308403 for details).

214583 **For Fast-Flo 1:1 Pumps**
Allows direct mounting of full-length Fast-Flo 1:1 pumps into standard 2 npt drum bung.

Sealed Bung Adapters

Prevents rain water and other fluids from entering drum when pump is bung-mounted outdoors.

204076 Sealed bung adapter for full-length Fire-Ball pumps with 2-1/8 in (53.9 mm) bung

224579 Sealed bung adapter for universal length Fire-Ball pumps
(will not fit full-length pumps).

217359 Sealed bung adapter for Fast-Flo pumps; can be used with suction kit #236054

187754 Acetal Bung Adapter
Includes: 100220 Thumbscrew
(for use with Fire-Ball 300, 15:1 SST undercoating pump)

176684 Bung Adapter for Suction Kit #203992
Includes: 100220 Thumbscrew

203688

Low-Level Cut-Offs

Prevents air from entering pump by closing intake when fluid supply to pump is exhausted. Can be used with suction hose kit or standard suction tube without changing tube length.

203688 Low-level cut-offs for Fast-Ball, and Fire-Ball pumps
For pumps that have a universal design with suction tube extension supplying metered outlets; replaces stand-off suction tube; 1.5 npt(f) inlet. 3 in (76 mm) height.

204159 Low-level cut-off for pump models #203857, #203872 and #204254 built prior to 1996.
2 in uns (m) inlet

Thermal Relief Valve Kits (includes valve, hose and fittings)

235998 Mini Fire-Ball 225, 3:1 thermal relief valve rated to 600 psi (41 bar)

237893 Fire-Ball 300, 5:1 thermal relief valve rated to 900 psi (62 bar)

237601 Fire-Ball 425, 3:1 thermal relief valve rated to 600 psi (41 bar)

240429 Fire-Ball 425, 6:1 and 10:1 thermal relief valves rated to 1600 psi (110 bar)

238899 Diaphragm pump thermal relief valve rated to 150 psi (10.4 bar)

112353 Diaphragm pump thermal relief valve for fuel dispense; rated to 50 psi (3.4 bar), valve only

Bleed-Type Air Shut-Off Valves (rated to 250 psi [17.4 bar]) Female ends

110223 1/4 in (6.4 mm)

110224 3/8 in (9.5 mm)

110225 1/2 in (12.7 mm)

110226 3/4 in (19.1 mm)

Oil Accessories

Air-Operated Piston Pumps and Packages

1

Fluid Shut-Off Valves (rated to 2000 psi [138 bar])
For isolating oil dispense lines.

108458 1/2 in (12.7 mm)

108537 3/4 in (19.1 mm)

110314 1 in (25.4 mm)

108458

240417 Fluid T-Strainers
60 Mesh Strainer, 750 psi (51 bar) working pressure. Prevents foreign material from entering dispense lines. Not for use with grease lines. 1/2 in npt(f) swivel x 1/2 in npt(m) ports.

240417

Mesh Strainer Replacement for #240417

3 replacement Elements	25 replacement Elements	Mesh
238433	**238434**	40 mesh
238431	**238432**	60 mesh (standard)
238429	**n/a**	100 mesh

Y-Strainers 400 psi (28 bar) max. working pressure
Filters material before it enters the pump. 20 mesh screen.

Y-Strainer	Replacement Screens	Inlet/Outlet
101078	**180199**	3/4 npt(f) both ends
110877	**110906**	1/2 npt(f) both ends
110878	**110907**	1 npt(f) both ends

101078

Notes

Oil Pumps
Quick Reference

1

Oil Pumps

Model Pump Ratio	Universal	16 Gal. (60 l) Cover Mt.	55 Gal. (200 l) Bung Mt.	55 Gal. (200 l) Cover Mt.	275 Gal. (1040 l) Bung Mt.	Typical Application
Fast-Ball						
1:1	222051	N/A	222103	N/A	222104	Short Distance Transfer MO, GO, ATF, HYD
Fast-Flo	*UL-Approved*					
1:1	226944	N/A	226941	N/A	N/A	Short Distance Transfer MO, GO, ATF, HYD
Fast-Flo	*Stainless Steel; UL-Approved*					
1:1	226945	N/A	226942	N/A	N/A	Short Distance Transfer WWS, MO, WA, GO, ATF, HYD
Mini Fire-Ball 225						
3:1	246775	246904	246907	246906	246907	Maintenance Facility MO, GO, ATF, HYD
Fire-Ball 300						
5:1	203876	203872	204254	203857	222087	Continuous duty, Maintenance Facility MO, GO, ATF, HYD
Fire-Ball 425						
3:1	237526	N/A	N/A	N/A	N/A	High-flow, Low-pressure Maintenance Facility, MO, GO, ATF, HYD
6:1	238108	N/A	N/A	N/A	N/A	High-flow, Medium-pressure Maintenance Facility, MO, GO, ATF, HYD
10:1	205626	N/A	222095	222065	N/A	Long-distance Maintenance Facility, MO, GO, ATF, HYD

Mounting Accessories

Pump	Fast-Ball & Fast Flo	Mini Fire-Ball 225	Fire-Ball 300	Fire-Ball 425	Fire-Ball 425
Ratio	1:1	3:1	5:1	3:1	6:1
Bung Adapter	222308	222308	222308	N/A‡	N/A‡
Connection Hose Kit	222118 (18 in [45.7 cm]) 222119 (72 in [182.8 cm])	222062 (18 in [45.7 cm]) 222063 (72 in [182.8 cm])	222062 (18 in [45.7 cm]) 222063 (72 in [182.8 cm])	238246 (24 in [60.9 cm]) -	238246 (24 in [60.9 cm]) -
Wall Mounting Bracket	203987	203987	203987	238245	238245
Thermal Relief Kit	-	235998	237893	237601	240429
Air Regulator and Gauge	110147	109075	109075	104266/100960	104266/100960
Air Filter	110146	106148	106148	106149	106149
Air Lubricator	110148	N/A	214847	214848	214848
FRL*	110149	N/A	110150	217072	217072
Airline Shutoff Valve	110223	110224	110224	110225	110225
Fluid Shutoff Valve	108537	108458	108458	108537	108537
Fluid Outlet Filter	240417	240417	240417	101078	112087
Low-Level Cutoff	203688	203688	203688	203688	203688
Suction Hose Kit	236054	236054	236054	N/A**	N/A**

**Filter, Regulator, Lubricator and Gauge*
***Recommend 1-1/2 in, 6 ft hose assembly as suction kit*
‡Must be wall-mounted or flange-mounted

Wetted Materials	Max. Fluid Outlet Pressure	Air Operating Range	Cycles/Gallon (cycles/liter)	Fluid Flow @ 80 cpm gpm (lpm)	Approx. Air Consumption	Air Inlet (npt)	Material Outlet (npt)	Material Inlet (npt)
CS Urethane	180 psi (12.4 bar)	40-180 psi (2.8-12.4 bar)	10 gpm (45.5 lpm)	4-5 gpm (18-22.7 lpm)	7cfm @ 100 psi (7 bar)	1/4 (f)	3/4 (f)	1-1/2 (f)
CS Polyethylene	180 psi (12.4 bar)	40-180 psi (2.8-12.4 bar)	10 gpm (45.5 lpm)	4-5 gpm (18-22.7 lpm)	7cfm @ 100 psi (7 bar)	1/4 (f)	3/4 (f)	1-1/2 (f)
SS Polyethylene	180 psi (12.4 bar)	40-180 psi (2.8-12.4 bar)	10 gpm (45.5 lpm)	4-5 gpm (18-22.7 lpm)	7cfm @ 100 psi (7 bar)	1/4 (f)	3/4 (f)	1-1/2 (f)
Steel, Buna, Rulon, Aluminum, Polyurethane	450 psi (31 bar)	40-150 psi (2.8-10.4 bar)	43.5 gpm (11.4 lpm)	1.84 gpm (7 lpm)	15cfm @ 100 psi (7 bar)	3/8 (f)	1/2 (f)	1-1/2 (f)
Nitrile, Steel, Aluminum Polyurethane	900 psi (62 bar)	40-180 psi (2.8-12.4 bar)	28.4 gpm (8.6 lpm)	2.8 gpm (9.3 lpm)	18cfm @ 100 psi (7 bar)	3/8 (f)	1/2 (f)	1-1/2 (f)
Nitrile, Steel, Aluminum Polyurethane	540 psi (37 bar)	40-180 psi (2.8-12.4 bar)	6 gpm (1.6 lpm)	13.4 gpm (50.6 lpm)	40cfm @ 100 psi (7 bar)	1/2 (f)	3/4 (f)	1-1/2 (f)
Nitrile, Steel, Aluminum Polyurethane	1100 psi (76 bar)	40-180 psi (2.8-12.4 bar)	12 gpm (3.2 lpm)	6.6 gpm (25.3 lpm)	40cfm @ 100 psi (7 bar)	1/2 (f)	3/4 (f)	1-1/2 (f)
Nitrile, Steel, Aluminum Polyurethane	1800 psi (124 bar)	40-180 psi (2.8-12.4 bar)	19.6 gpm (5.2 lpm)	4.1 gpm (15.4 lpm)	40cfm @ 100 psi (7 bar)	1/2 (f)	3/4 (f)	1-1/2 (f)

Fire-Ball 425
10:1
222308
222068 (18 in [45.7 cm]) 222066 (72 in [182.8 cm])
203987
240429
104266/100960
106149
214848
217072
110225
108537
112087
203688
236054

Key

MO = Motor Oil
GO = Gear Oil
WWS = Windshield Washer Solvent
WA = Water, Anti-Freeze
HYD = Hydraulic Fluid
ATF = Automatic Transmission Fluid

Notes

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Grease Pumps

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Grease Pumps
Selection Guide

2

Pump Pictured	Falcon	Fire-Ball 300	Fire-Ball 425	Fire-Ball 425
Ratio	50:1	50:1	50:1	75:1
Line Length*	Up to 100 ft (30.5 m)	Up to 250 ft (76.2 m)	Up to 500 ft (152.4 m)	Up to 500 ft (152.4 m)
Dispense Points *(simultaneous)*	1	1 to 2	4 or more	4 or more
Annual Usage lb (kg)	Up to 5,000 (up to 2,268)	Up to 10,000 (up to 4,535)	20,000 or more (9,072 or more)	15,000 or more (6,804 or more)
Typical Application	• Auto Dealerships • Fast Lube Centers • Service Shops	• Auto Dealerships • Heavy Duty Dealerships • Fast Lube Centers • Fleet Service Facilities • Service Shops • In-Plant • Mining	• Auto Dealerships • Heavy Duty Dealerships • Fleet Service Facilities • Service Shops • In-Plant • Lube Trucks • Mining	• Auto Dealerships • Heavy Duty Dealerships • Fleet Service Facilities • Service Shops • In-Plant • Lube Trucks • Mining
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** Consult your local authorized Graco representative for line or piping size*

Falcon® 50:1
Air-Operated Piston Pumps

Features and Benefits
- Non-corrosive air motor design for long life
- Double-acting pump ensures smooth fluid flow
- Robust grease inlet cage withstands the most abusive handling

Typical Application
- High pressure, low volume grease dispense
- Automotive dealerships
- Fast lube centers
- Service shops

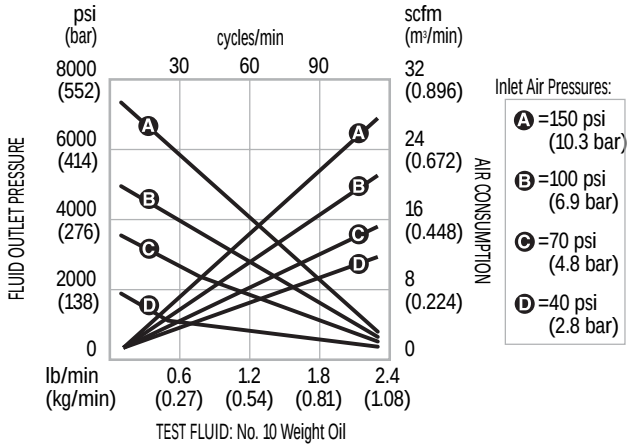
Typical Fluids Handled
- Grease up to NGLI #2

Falcon 50:1
244045 shown

Technical Specifications

Maximum Fluid Pressure	7500 psi (517 bar)
Air Motor Effective Diameter	2.93 in (74.4 mm)
Operating Range	40-150 psi (2.8-10.4 bar)
Continuous Duty Flow Rate	0.23 gpm (0.87 lpm)
Approx. Air Consumption @100 psi (7 bar)	15 cfm
Air Inlet	3/8 npt (f)
Material Outlet	1/4 npt (f)
Material Inlet	slotted
Wetted Parts	CS, Polyurethane, Buna-N
Instruction Manual	309224

Pump Performance



TEST FLUID: No. 10 Weight Oil

Falcon 50:1 Packages
Air-Operated Piston Pumps

2

	Portable Pail Dispenser	Stationary Pail Dispenser	Dolly-Mounted Pail Dispenser	Cart-Mounted Pail Dispenser	Cart-Mounted Pail-Topper Dispenser
Container Size	35 lb (16 kg)	35 lb (16 kg) pails or 70 lb (32 kg) bulk	35 lb (16 kg) pails or 70 lb (32 kg) bulk	35 lb (16 kg) pails or 70 lb (32 kg) bulk	35 lb (16 kg)
Package No.	**244095+**	**244097+**	**244099+**	**244098+**	**244096+**
Pump No.	244044	244044	244044	244044	244044
Container	-	204134	204134	204134	-
Handle	188832	-	-	-	-
Follower Plate	220653	*	*	*	*
Dispense Kit	236058	236058	236058	236058	236058
Fluid Hose	12 ft x 1/4 in (3.7 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)
Air Hose	-	-	-	-	-
Cover	222059	204574	204574	204574	-
Cart	-	-	204144	203650	203650
Elevator	-	-	-	-	203664
Inductor	-	-	-	-	204351
Instruction Manual	308300	308300	308300	308300	308300

244095

244097

244099

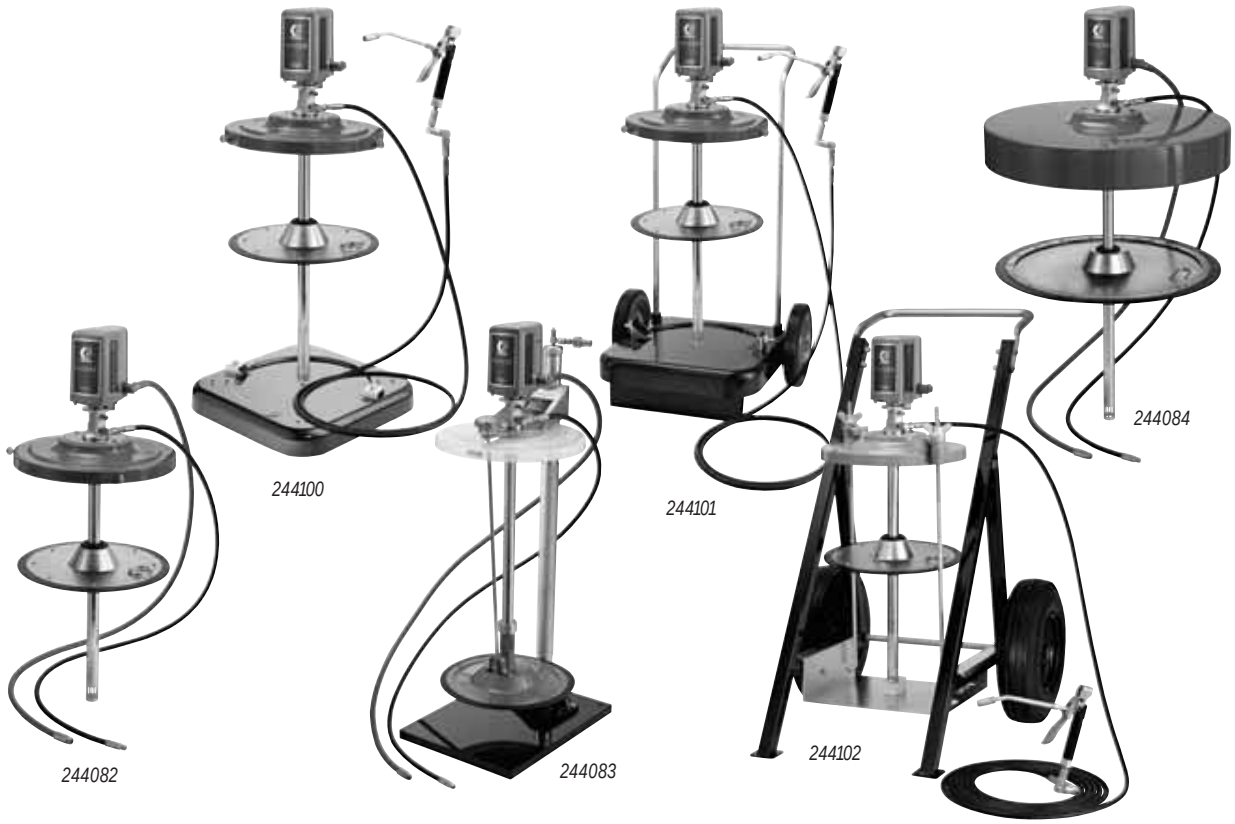
244098

244096

+ Order 3/8 in (9.5 mm) air regulator (109075) separately
** Order follower plate #220653 separately for 35 lb (16 kg) pails or #220654 for 70 lb (32 kg) bulk*

Falcon 50:1 Packages
Air-Operated Piston Pumps

	Stationary Supply Package	Portable Package w/ Caster Base	Stationary Topper-Inductor Pkg	Portable Package w/ 2-Wheel Cart	Portable Package w/ Heavy-Duty Cart	Stationary Supply Package
Container Size	120 lb (55 kg)	120 lb (55 kg)	120 lb (55 kg)	120 lb (55 kg)	120 lb (55 kg)	400 lb (180 kg)
Package No.	**244082+**	**244100+**	**244083+**	**244101+**	**244102+**	**244084+**
Pump No.	244045	244045	244045	244045	244045	244046
Follower Plate	220654	220654	-	220654	220654	223845
Dispense Kit	222072	236058	-	236058	222383	222072
Fluid Hose	6 ft x 1/4 in (1.8 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)	6 ft x 1/4 in (1.8 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)	25 ft x 1/4 in (7.6 m x 6.4 mm)	6 ft x 1/4 in (1.8 m x 6.4 mm)
Air Hose	6 ft x 3/8 in (1.8 m x 9.5 mm)	-	6 ft x 3/8 in (1.8 m x 9.5 mm)	-	-	6 ft x 3/8 in (1.8 m x 9.5 mm)
Cover	204574	204574	-	204574	222060	200326
Base / Cart	-	203622	-	203650	222243	-
Elevator	-		204121	-	-	-
Pump Support	-		222074	-	-	-
Hold Down Kit	-	-	-	-	222061	-
Instruction Manual	308300	308300	308300	308300	308300	308300



+ Use 3/8 in (9.5 cm) air regulator #109075; must be ordered separately

Fire-Ball® 300, 50:1
Air-Operated Piston Pumps

2

Features and Benefits
- Non-corrosive air motor design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact provides longer pump life and withstands harsh environments
- Double-acting pump provides smooth fluid flow
- Few moving parts translates into low maintenance and low cost of ownership
- Robust grease inlet cage withstands the most abusive handling

Typical Application
- High pressure, medium volume grease dispense
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

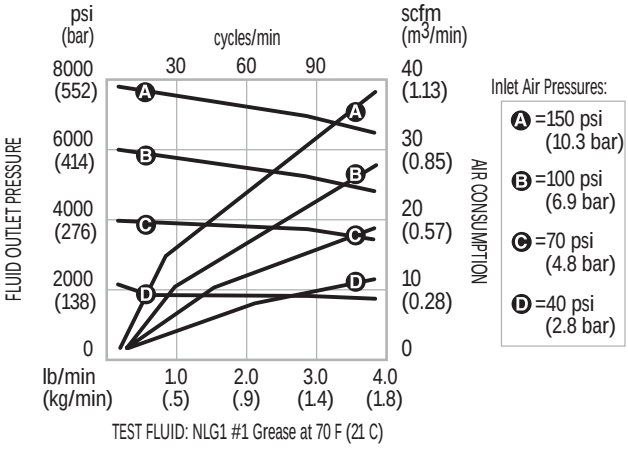
Typical Fluids Handled
- Grease up to NGLI #2

239888

Technical Specifications

Maximum Fluid Pressure	8400 psi (580 bar)
Air Motor Effective Diameter	3 in (76.2 mm)
Operating Range	30-140 psi (3.0-9.7 bar)
Continuous Duty Flow Rate	0.23 gpm (0.82 lpm)
Approx. Air Consumption @100 psi (7 bar)	22.8 cfm
Air Inlet	3/8 npt (f)
Material Outlet	1/4 npt (f)
Material Inlet	slotted
Wetted Parts	CS, Delrin, Buna-N, Polyurethane
Instruction Manual	308883

Pump Performance



TEST FLUID: NLG1 #1 Grease at 70 F (21 C)

Fire-Ball 300, 50:1 Packages
For 35-70 lb (16.32 kg) Containers

	Portable Pail Dispenser	Stationary Pail Dispenser	Cart-Mounted Pail Dispenser	Cart-Mounted Pail Topper
Container Size	35 lb (16 kg)	35 lb or 70 lb (16 kg or 32 kg)	35 lb or 70 lb (16 kg or 32 kg)	35 lb (16 kg)
Package No.	**222069***	**225827***	**225773***	**226012***
Metered Package**	**245694**	**-**	**245695**	**-**
Pump No.	239877	239877	239877	239877
Dispense Kit	222070	222070	222070	222070
Fluid Hose	12 ft x 1/4 in (3.7 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)
Air Hose	-	-	-	-
Follower Plate	220653	†	†	-
Cover	222059	204574	204574	-
Holster	-	203976	203976	203976
Container	-	204134	204134	-
Cart	-	-	203650	203650
Elevator	-	-	-	203664
Inductor Plate	-	-	-	204351
Instruction Manual	307878	307878	307878	307878

222069

225827

225773

226012

* *Use 3/8 in (9.5 mm) air regulator #109075; must be ordered separately*

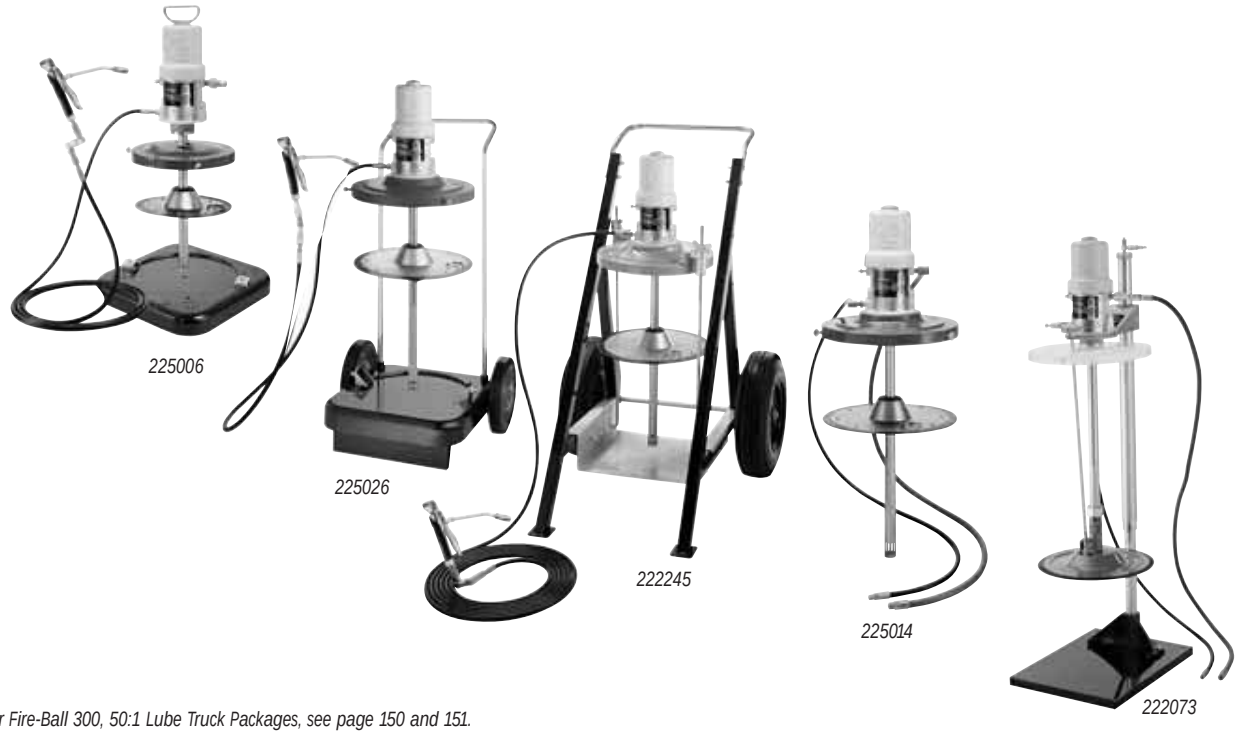
** *Metered grease package includes 233807 Accu-Shot instead of 242056 Pro-Shot*

† *Order follower plate #220653 for 35 lb (16 kg) containers, and follower plate #220654 for 70 lb (32 kg) containers; must be ordered separately*

Fire-Ball 300, 50:1 Packages
For 120 lb (55 kg) Containers

2

	Portable Package w/Caster Base	Portable Package w/Two-Wheel Cart	Portable Package w/Heavy-Duty Cart	Stationary Supply Package	Stationary Supply Topper-Inductor Package
Container Size	120 lb (55 kg)	120 lb (55 kg)	120 lb (55 kg)	120 lb (55 kg)	120 lb (55 kg)
Package No.	**225006***	**225026***	**222245***	**225014***	**222073***
Metered Package		**245696****			
Pump No.	239887	239887	239887	239887	239887
Dispense Kits	222070	222070	222383	222072	-
Fluid Hose	12 ft x 1/4 in (3.7 m x 6.4 mm)	12 ft x 1/4 in (3.7 m x 6.4 mm)	25 ft x 1/4 in (7.6 m x 6.4 mm)	6 ft x 1/4 in (1.8 m x 6.4 mm)	6 ft x 1/4 in (1.8 m x 6.4 mm)
Air Hose	-	-	-	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)
Follower Plate	220654	220654	220654	220654	-
Cover	204574	204574	222060	204574	-
Holster	203976	203976	-	-	-
Caster Base	203622	-	-	-	-
Cart	-	203650	222243	-	-
Elevator	-	-	-	-	204121
Pump Support	-	-	-	-	222074†
Hold Down Kit	-	-	222061	-	-
Instruction Manual	307878	307878	307878	307880	306523



225006

225026

222245

225014

222073

For Fire-Ball 300, 50:1 Lube Truck Packages, see page 150 and 151.

** Use 3/8 in (9.5 mm) air regulator #109075; must be ordered separately*

*** Metered grease package includes 233807 Accu-Shot instead of 242056 Pro-Shot*

† Pump support assembly includes dust cover, base, inductor plate and 6 ft (1.8 m) fluid & air hoses

Fire-Ball 300, 50:1 Packages
For 400 lb (180 kg) Containers

	Stationary Package	Topper-Inductor Package
Container Size	400 lb (180 kg)	400 lb (180 kg)
Package No.	**225016***	**226013***
Pump No.	239888	239888
Hose & Fitting Kit	222072	204467
Fluid Hose	6 ft (1.8 m) x 1/4 in (6.4 mm)	6 ft (1.8m) x 1/4 in (6.4 mm)
Air Hose	6 ft (1.8 m) x 3/8 in (9.5 mm)	6 ft (1.8m) x 3/8 in (9.5 mm)
Follower Plate	223845	-
Cover	200326	-
Carriage	-	204461
Elevator	-	204385
Inductor Plate	-	204353
Base	-	205339
Instruction Manual	307880	306556

225016

226013

For Fire-Ball 300, 50:1 Lube Truck Packages, see page 150 and 151
For more Inductor and Ram packages, see page 43 and 148
** Use 3/8 in (9.5 mm) air regulator #109075; must be ordered separately*

Fire-Ball® 425, 50:1
Air-Operated Piston Pumps

2

Features and Benefits
- Non-corrosive air motor design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact provides longer pump life and withstands harsh environments
- Double-acting pump provides smooth fluid flow
- Few moving parts translates into low maintenance and low cost of ownership
- Robust grease inlet cage withstands the most abusive handling

205395

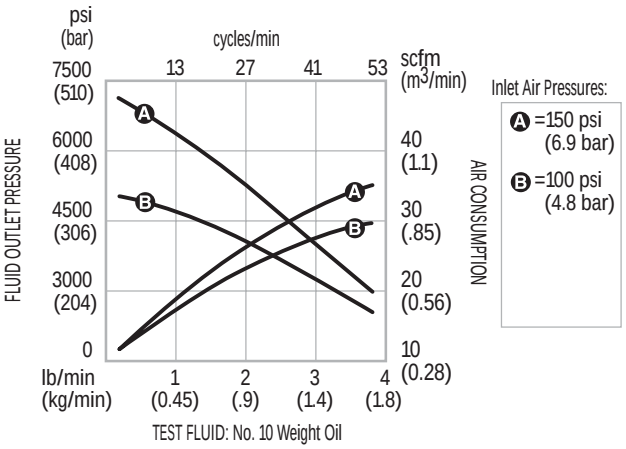
Typical Application
- High pressure volume grease dispense
- Automotive dealerships
- Heavy duty dealerships
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Grease up to NLGI #2

Technical Specifications

Maximum Fluid Pressure	7500 psi (517 bar)
Air Motor Effective Diameter	4.25 in (10.8 cm)
Operating Range	40-150 psi (2.8-10.4 bar)
Continuous Duty Flow Rate	0.55 gpm (2 lpm)
Approx. Air Consumption @ 70 psi (4.8 bar)	19 cfm
Air Inlet	1/2 npt (f)
Material Outlet	3/8 npt (f)
Material Inlet	slotted
Wetted Parts	CS, Leather
Instruction Manual	306674/306982

Pump Performance



Fire-Ball 425, 50:1 Packages
Air-Operated Piston Pumps

	Stationary Supply Package	Stationary Supply Package	Stationary Topper-Inductor Package	Ram Package
Container Size	120 lb (55 kg)	400 lb (180 kg)	400 lb (180 kg)	400 lb (180 kg)
Package No.	**223108***	**225781***	**226018***	**244905**
Pump No.	205394	205395	205395	205395
Hose Kit	222076	222076	205102	222076
Fluid Hose	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)	6 ft x 3/8 in (1.8 m x 9.5 mm)
Air Hose	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)	6 ft x 1/2 in (1.8 m x 12.7 mm)
Cover	204574	200326	-	-
Follower Plate	223344	223846	-	-
Carriage	-	-	204461	-
Elevator	-	-	204385	-
Inductor Plate	-	-	205699	-
Base	-	-	205339	-
Ram	-	-	-	207279
Air Regulator	-	-	-	244844
Adapter Plate	-	-	-	162225
Adapter Kit	-	-	-	224266
Instruction Manual	307880	307880	306556	309345

223108

225781

226018

For Fire-Ball 425, 50:1 Lube Truck Packages, see page 150 and 151
For more Inductor and Ram packages, see page 43 and 148
** Use 1/2 in (12.7 mm) air regulator #104266 and gauge #100960; must be ordered separately*

Fire-Ball® 425, 75:1
Air-Operated Piston Pumps

2

Features and Benefits
- Non-corrosive air motor design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact provides longer pump life and withstands harsh environments
- Double-acting pump provides smooth fluid flow
- Few moving parts translates into low maintenance and low cost of ownership
- Robust grease inlet cage withstands the most abusive handling

239729

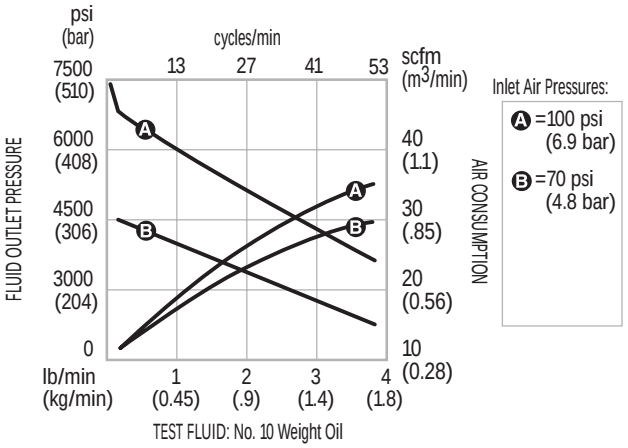
Typical Application
- Higher pressure, medium volume grease dispense
- Automotive dealerships
- Heavy duty dealerships
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Grease up to NGLI #2

Technical Specifications

Maximum Fluid Outlet Pressure	7500 psi (517 bar)
Air Motor Effective Diameter	4.25 in (10.8 cm)
Operating Range	40-100 psi (2.8-7 bar)
Continuous Duty Flow Rate	0.36 gpm (1.36 lpm)
Approx. Air Consumption @100 psi (7 bar)	26 cfm
Air Inlet	1/2 npt(f)
Material Outlet	3/8 npt(f)
Material Inlet	slotted
Wetted Parts	CS, leather
Instruction Manual	308777; 306982

Pump Performance



Fire-Ball 425, 75:1 Packages
Air-Operated Piston Pumps

	Cover-Mounted Package	Cover-Mounted Package	Inductor Package	Ram Package	Pail Length 35/70 lb	400 lb (180 kg) Bung or Cover
Container Size	120 lb (55 kg)	400 lb (180 kg)	400 lb (180 kg)	400 lb (180 kg)	Pail Length	400 lb (180 kg)
Package	**244635***	**244636***	**244637***	**244906**		
Bare pump no.	239729	239730	239730	239730	239731	965129
Hose and Fitting Kit	222076	222076	205102	222076		
Drum Cover	204574	200326	-	-	204574	
Follower Plate	223344	223846	-	-	**	
Carriage	-	-	204461	-		
Elevator	-	-	204385	-		
Base	-	-	205339	-		
Inductor	-	-	205699	-		
Ram	-	-	-	207279		
Air Regulator	-	-	-	244844		
Adapter Plate	-	-	-	162225		
Adapter Kit	-	-	-	224266		
Instruction Manual	307880	307880	306556	309345	-	-

For Fire-Ball 425, 75:1 Lube Truck Packages, see page 150 and 151
For more Inductor and Ram packages, see page 43 and 148
** use 1/2 in (12.7 mm) air regulator #104266 and gauge #100960; must be ordered separately*
*** 35 lb: 220653 / 70 lb: 223344*

Fire-Ball® 300, 15:1
Air-Operated Piston Pumps

2

Features and Benefits
- Non-corrosive air motor design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact provides longer pump life and withstands harsh environments
- Double-acting pump provides smooth fluid flow
- Few moving parts translates into low maintenance and low cost of ownership

222078

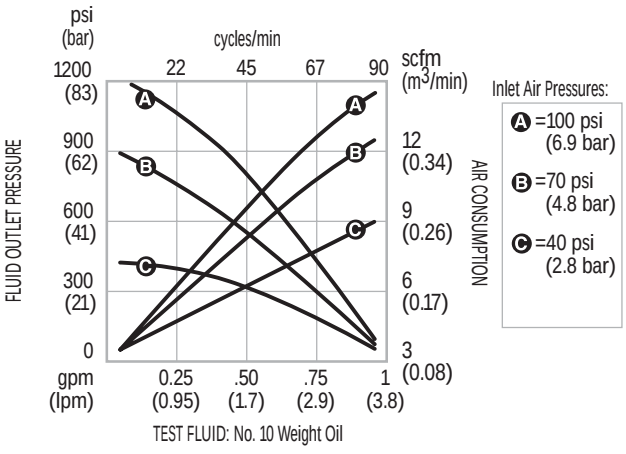
Typical Application
- Medium pressure, medium volume dispense of pourable grease
- Automotive dealerships
- Heavy duty dealerships
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Grease up to NGLI #0

Technical Specifications

Maximum Fluid Pressure	2700 psi (186 bar)
Air Motor Effective Diameter	3 in (7.6 cm)
Operating Range	40-180 psi (2.8-12.5 bar)
Maximum Continuous Duty Flow Rate	0.7 gpm (2.7 lpm)
Approx. Air Consumption @100 psi (7 bar)	17 cfm
Air Inlet	3/8 npt (f)
Material Outlet	1/4 npt (f)
Material Inlet	1 npt (straight inlet)
Wetted Parts	CS, AL, Leather, PTFE, Rubber
Instruction Manual	306531

Pump Performance



TEST FLUID: No. 10 Weight Oil

Fire-Ball 300, 15:1 Packages
Air-Operated Piston Pumps

	Stationary Pail Dispenser	Stationary Drum Dispenser	Cover-Mounted Drum Dispenser
Drum Size	35 lb (16 kg)	120 lb (55 kg)	400 lb (180 kg)
Package No.	**222078**	**220170**	**220171**
Pump No.	206405	206699	206700
Dispense Kit	222080	222081	222081
Fluid Hose	15 ft x 3/8 in (4.6 m x 9.5 mm)	25 ft x 3/8 in (7.6 m x 9.5 mm)	25 ft x 3/8 in (7.6 m x 9.5 mm)
Drum Cover	222058	204574	200326
Instruction Manual	307882	307882	307882

Fire-Ball® 425, 10:1
Air-Operated Piston Pumps

2

Features and Benefits
- Non-corrosive air motor design (metal parts made of SST, aluminum and chrome) for long life
- No metal-to-metal contact provides longer pump life and withstands harsh environments
- Double-acting pump provides smooth fluid flow
- Few moving parts translates into low maintenance and low cost of ownership

Typical Application
- Low pressure, medium volume transfer of grease
- Heavy duty dealerships
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Grease up to NGLI #2

965129

Technical Specifications

Maximum Fluid Outlet Pressure	1800 psi (124 bar)
Air Motor Effective Diameter	4.25 in (10.8 cm)
Operating Range	40-180 psi (2.8-12 bar)
Continuous Duty Flow Rate	0.36 gpm (1.36 lpm)
Approx. Air Consumption @100 psi (7 bar)	13 cfm
Air Inlet	1/2 npt(f)
Material Outlet	3/8 npt(f)
Material Inlet	slotted
Wetted Parts	steel, brass, aluminum, leather, Buna-N
Instruction Manual	309407

Ordering Information

965129 Fire-Ball 425, 10:1 pump for closed 400 lb (180 kg) head drums complete with bung adapter. For open head drum, remove bung adapter and mount to #200326, 400 lb (180 kg) drum cover. Ideal for transferring grease from 400 lb (180 kg) drum or side pocket of tote tank. Can be modified for stubby horizontal mount on tote tanks. Contact Graco technical assistance for information.

Ram Assemblies

Fire-Ball Grease Pumps

Ram Systems

Fire-Ball Pumps

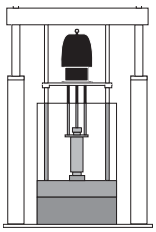
Description	Fire-Ball 300, 50:1	Fire-Ball 425, 75:1	Fire-Ball 425, 50:1	Fire-Ball 425, 10:1
System Package	*	244906	244905	*
Bare Pump	239888	239730	205395	965129
Ram	223943	207279	207279	207279
Plate	**	162225	162225	162225
Adapter Kit	224267	224266	224266	not needed
Air Control Kit	**	223942	223942	223942
Air Regulator and Gauge	203716	207468	207468	207468

**Order individual components*
***Included in 223943*

Drum Systems

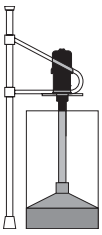
Ram Mount

- Force feed high volume pumps
- Extreme viscous grease
- Reduce waste
- Clean and convenient method of drum change



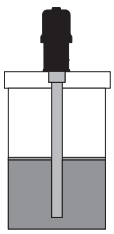
Inductor Mount

- Reduce waste
- Clean and convenient method of drum change



Cover Mount with Follower Plate

- Economical



Grease Accessories
Air-Operated Piston Pumps and Packages

2

Dispense, Hose and Fitting Kits

Dispense Kits Rated To 5000 psi (345 bar) for Portable Fire-Ball 300, 50:1 or Falcon 50:1 Pumps

222080 For Fire-Ball 300, 15:1
Includes: 15 ft (4.6 m) of 3/8 in (9.5 mm) fluid hose #109165, grease dispense valve #242056, Z-Swivel #202577, 3/8 in (9.5 mm) closed nipple #156849, quick-disconnect nipple #169971, quick-disconnect air coupler #110198 and 3/8 in (9.5 mm) air regulator #110234.

222081 For Fire-Ball 300, 15:1
Includes: 25 ft (7.6 m) of 3/8 in (9.5 mm) fluid hose #109167, grease dispense valve #242056, Z-Swivel #202577, 3/8 in (9.5 mm) closed nipple #156849, quick-disconnect nipple #169971, quick-disconnect air coupler #110198 and 3/8 in (9.5 mm) air regulator #110234.

236058 For Falcon 50:1
Includes: 12 ft (3.6 m) fluid hose #109151, air coupler #208536, air nipple #169971, grease dispense valve #242056, gun holder #188843 and Z-Swivel #202577. Instruction manual 307878.

222070 For Fire-Ball 300, 50:1
Includes: 12 ft (3.6 m) fluid hose #109151, air coupler #208536, air nipple #169971, grease dispense valve #242056 and Z-Swivel #202577. Instruction manual 307878.

222383 For Portable Units Powered by the Falcon 50:1 or Fire-Ball 300, 50:1 Pumps
Includes: dispense kit includes: grease dispense valve #242056, 25 ft (7.6 m) fluid hose #109054, air coupler #208536, air nipple #169971 and Z-Swivel #202577. Instruction manual 307878.

Hose and Fitting Kits Rated to 5000 psi (345 bar) for Stationary Drum-Mounted Fire-Ball 300, 50:1 Pumps

222072 Hose and Fittings Kit
Includes: 6 ft (1.8 m) air hose #203320 with swivel elbow #155494 and 6 ft (1.8 m) fluid hose #109150 with swivel elbow #155541. Instruction manual 307880.

Hose and Fittings Kit Rated to 4000 psi (276 bar) for Stationary Drum-Mounted Fire-Ball 425, 50:1 Pumps

222076 Hose and Fittings Kit
Includes: 6 ft (1.8 m) air hose #205418 with swivel elbow #155470 and 6 ft (1.8 m) fluid hose #109163 with swivel elbow #155494. Instruction manual 307880.

Bung Adapters

239965 For Fire-Ball 425, 50:1 and 75:1 Pumps, 1.65 in ID

239966 For Fire-Ball 300, 15:1 and 50:1 Pumps

Lincoln-to-Graco Adapter Kit

241246 For Fire-Ball 300, 50:1 when replacing a Series 20 Lincoln

Grease Accessories
Air-Operated Piston Pumps and Packages

Flange Mounting Accessories for Fire-Ball Pumps

948393 Flange adapter (male) Fire-Ball 300

948392 Flange adapter (male) Fire-Ball 425

512874 Coupler (female)

Follower Plates

220653

220653 For 35 lb (16 kg) pails with Falcon 50:1, Fire-Ball 300, 15:1 and 50:1 pumps

220654 For 70 lb (32 kg) and 120 lb (55 kg) drums with Falcon 50:1, and Fire-Ball 300, 15:1 and 50:1 pumps

223344 For 120 lb (55 kg) drums with Fire-Ball 425, 50:1 and 75:1 pumps

223700 For 120 lb (55 kg) drums with Dyna-Star 5:1 pumps

223845 For 400 lb (180 kg) drums with Falcon 50:1, Fire-Ball 300, 15:1 and 50:1 pumps, 1.19 in ID

204130 Follower plate same as #223845, but without flexible wiper

223846 For 400 lb (180 kg) drums with Fire-Ball 425, 50:1 and 75:1 pumps, 1-13/32 in ID

205337 Follower plate same as #223846, but without flexible wiper

223701 For 400 lb (180 kg) drums with Dyna-Star 5:1 and Fire-Ball 425, 10:1 pumps, 2.1 in ID

Grease Accessories
Air-Operated Piston Pumps and Packages

2

Drum Covers

200326 Cover for open-head 400 lb (180 kg) drum
Use with any Falcon or Fire-Ball grease pump or Dyna-Star 5:1 pump.
Use with adapter #160754 for cover-mounted pumps.

204574 Cover for open-head 120 lb (55 kg) or 70 lb (32 kg) drums
Mounts Falcon or Fire-Ball grease pumps or Dyna-Star 5:1 pump.
Use with adapter #160754 for cover-mounted pumps.

222058 Cover for 35 lb (16 kg) pails
Mounts Falcon 50:1 and Fire-Ball 300, 50:1 pumps.

222059 Cover for 35 lb (16 kg) pails
Mounts Falcon 50:1 and Fire-Ball 300, 50:1 pumps using friction-style clutch lock.
Allows use of 70 lb (32 kg) length pump with 35 lb (16 kg) pail.

160754 Bung-adapter plate
Mounts to standard 400 lb (180 kg) or 120 lb (55 kg) drum cover and converts mounting to standard 2 npt bung opening. Allows use of bung-mounted pumps with drum covers.

200326

204574

222059

160754

Grease Accessories
Air-Operated Piston Pumps and Packages

Portable Bases

205054 Band Dolly for 35 lb (16 kg) pails

204144 Band Dolly Base for 70 lb (32 kg) or 120 lb (55 kg) drums

203622 Caster Base for 35 lb (16 kg), 70 lb (32 kg) or 120 lb (55 kg) drums

204144

203622

Carts

203650 For 35 lb (16 kg), 70 lb (32 kg) and 120 lb (55 kg) drums
Drums fit onto recess on formed base. Rim clamps secure drum onto cart.
Use with pail clamp #159952 when using cart with 35 lb (16 kg) pails.

222243 For 120 lb (55 kg) drums with pneumatic wheels for rough terrain.

111470 Drum truck for 400 lb (180 kg) drums
Heavy-duty drum truck secures drum onto roll-around base.

203650

111470

Drum Elevators

241663 Air-Powered Elevator to speed drum changes
Maximum raised height: 39.5 in (100.33 cm)
Includes: Cover Support 207562
Drum Elevator 204385
Air Control Kit 207561

241663

Air Shut-Off Valves, Bleed-type, rated to 250 psi (17.4 bar)

110223 1/4 in (6.4 mm)

110224 3/8 in (9.5 mm)

110225 1/2 in (12.7 mm)

110226 3/4 in (19.1 mm)

High-Pressure Grease Shut-Off Valves

202869 5000 psi (345 bar) high-pressure needle valve
1/2 npt(f) ported valve for drop-line isolation.

202869

Grease Pumps
Quick Reference

2

Grease Pumps

Model Pump Ratio	35 lb (16 kg)	70 lb (31 kg)	120 lb (55 kg)	400 lb (180 kg)	Typical Application	Wetted Parts	Max Fluid Outlet Pressure
Falcon							
50:1	244044	N/A	244045	244046	High-pressure grease dispense	CS Polyurethane Buna	7500 psi (517 bar)
Fire-Ball 300							
15:1	206405	206405	206699	206700	Medium-pressure grease dispense	CS Leather	2700 psi (186 bar)
50:1	239877	N/A	239887	239888	High-pressure grease dispense	CS/Delrin Polyurethane Buna-N	8400 psi (579 bar)
Fire-Ball 425							
10:1	**	**	N/A	965129	High-pressure grease dispense	CS Leather	1800 psi (124 bar)
50:1	N/A	N/A	205394	205395	High-pressure grease dispense	CS Leather	7500 psi (517 bar)
75:1	239731	239731	239729	239730	High-pressure grease dispense	CS Leather	7500 psi (517 bar)

***Contact Graco customer support for details on stubby mounting on tote tanks*

Mounting Accessories†

Pump	Falcon 50:1	Fire-Ball 300	Fire-Ball 425	Fire-Ball 425
Ratio	50:1	50:1	50:1	75:1
Cover 35 lb (16 kg)	222058	222058	N/A	204574
Cover 70 lb (32 kg)	204574	204574	N/A	204574
Cover 120 lb (55 kg)	204574	204574	204574	204574
Cover 400 lb (180 kg)	200326	200326	200326	200326
Follower Plate 35 lb (16 kg)	220653	220653	N/A	220653
Follower Plate 70 lb (32 kg)	220654	220654	N/A	223344
Follower Plate 120 lb (55 kg)	220654	220654	223344	223344
Follower Plate 400 lb (180 kg)	223845	223845	223846	223846
Hose & Fittings Kit	222072 (6 ft [1.8 m])	222072 (6 ft [1.8 m])	222076 (6 ft [1.8 m])	222076 (6 ft [1.8 m])
Dispense Kit	236058 (12 ft [3.7 m]) 222838 (25 ft [7.6 m])	222070 (12 ft [3.7 m]) 222383 (25 ft [7.6 m])	N/A	N/A
Air Regulator & Gauge	109075	109075	104266/100960	104266/100960
Air Filter	106148	106148	106149	106149
Air Lubricator	N/A	214847	214848	214848
FRL*	N/A	110150	217072	217072

**Filter, regulator, lubricator and gauge*

†See page 47-49 for bung adapters and flange accessories

Air Operating Range	Continuous Duty Flow Rate	Max. Rec. CPM	Approx. Air Consumption	Air Inlet NPT	Material Out NPT	Material Inlet
40-150 psi (2.8-10.4 bar)	1.8 lb/min (.82 kg/min)	95	15 cfm	3/8(f)	1/4(f)	slotted
40-180 psi (2.8-12.5 bar)	0.7 gpm (2.7 lpm)	60	17 cfm	3/8(f)	1/4(f)	slotted
30-140 psi (2.1-9.7 bar)	1.8 lb/min (.82 kg/min)	76	23 cfm	3/8(f)	1/4(f)	slotted
40-180 psi (2.8-12.5 bar)	3.5 gpm (13.3 lpm)	60	30 cfm	1/2(f)	3/4(f)	slotted
40-180 psi (2.8-12.4 bar)	4.4 lb/min (2 kg/min)	100	19 cfm	1/2(f)	3/8(f)	slotted
40-100 psi (2.8-12.4 bar)	2.9 lb/min (1.3 kg/min)	60	26 cfm	1/2(f)	3/8(f)	slotted

Fire-Ball 300	Fire-Ball 425**
15:1	10:1
204574	N/A
204574	N/A
204574	N/A
200326	200326
N/A	N/A
N/A	N/A
N/A	N/A
N/A	223701
N/A	N/A
222080 (15 ft [4.6]) 222081 (25 ft [7.6 m])	N/A
109075	104266/100960
106148	106149
214847	214848
110150	217072

***Contact Graco customer support for details on stubby mounting on tote tanks*

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Hydraulically-Powered Pumps

Dyna-Star®, Power-Star and
Viscount® II Pumps 52-54

3

Hydraulically-Powered Pumps
For Oil and Grease Applications

3

Features and Benefits

- Ties into existing hydraulic systems on mobile equipment
- Operates quieter than air driven pumps and doesn't require mufflers
- Eliminates the need for air compressors
- Provides self-lubrication for long life and reliability
- Hydraulic changeover is faster with less pulsation allowing smoother output pressure, even with long plumbing runs

Typical Application

- Low pressure, high volume oil transfer
- High pressure, high volume grease dispense
- Heavy duty dealerships
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled

- Petroleum and synthetic based oils
- Grease up to NGLI #2

Hydraulically-Powered Pumps
For Oil Applications

	Power-Star 1:1	Dyna-Star 1:1	Dyna-Star 1:1	Dyna-Star 1/4:1	Stainless Steel Dyna-Star 1:1
Drum Size	Universal	Universal	55 gal (200 l) Bung- or Cover-Mounted	Universal	Universal
Pump No.	**236754**	**224741**	**224742**	**236753**	**237653**
Maximum Hydraulic Input Pressure	1500 psi (102 bar)	1500 psi (102 bar)	1500 psi (102 bar)	1500 psi (102 bar)	1500 psi (102 bar)
Maximum Hydraulic Fluid Input Vol.	12 gpm (45.4 lpm)	3 gpm (11.4 lpm)	3 gpm (11.4 lpm)	3 gpm (11.4 lpm)	3 gpm (11.4 lpm)
Maximum Output Flow Rate	12 gpm (45.4 lpm)	3 gpm (11.4 lpm)	3 gpm (11.4 lpm)	10 gpm (37.9 lpm)	3 gpm (11.4 lpm)
Maximum CPM	60	60	60	60	60
Maximum Fluid Output Pressure	1500 psi (102 bar)	1500 psi (102 bar)	1500 psi (102 bar)	375 psi (25.1 bar)	1500 psi (102 bar)
Hydraulic Supply Inlet	3/4 npt	3/8 npt	3/8 npt	3/8 npt	3/8 npt(f)
Hydraulic Return Outlet	1-1/4 npt	3/4 npt	3/4 npt	3/4 npt	3/4 npt(f)
Fluid Outlet	1/2 npt	1/2 npt	1/2 npt	1/2 npt	1/2 npt(f)
Fluid Inlet	1-1/2 npt	1-1/2 npt	1-1/2 npt	1-1/2 npt	1-1/2 npt
Maximum Incoming Hydraulic Fluid Temp.	130º F (54º C)	130º F (54º C)	130º F (54º C)	130º F (54º C)	130º F (54º C)
Instruction Manual	308391	308155	308155	308390	308155
Applications	Bulk oil transfer	Oil dispensing	Oil dispensing	Bulk oil transfer	Anti-freeze dispensing

236754

224741

Hydraulic Fluid Controls
(Required for each Hydraulic Pump)

236864 Dyna-Star Fluid Controls [1500 psi (126 bar); 3 gpm (11.4 lpm)]. Includes manifold with pressure-reducing valve, flow control valve, pressure gauge, shut-off ball valves and 3 ft (0.9 m) supply and return hoses. Instruction manual 308395.

236865 Power-Star Fluid Controls [1500 psi (126 bar); 3 gpm (11.4 lpm)] Includes manifold with pressure-reducing valve, flow control valve, pressure gauge, shut-off ball valves and 3 ft (0.9 m) supply and return hoses. Instruction manual 308395.

237904 1:1 Dyna-Star Thermal Relief Valve [1600 psi (110 bar)]

For complete packages, see pages 142-143

Hydraulically-Powered Pumps
For Grease Applications

	Dyna-Star 5:1	Dyna-Star 5:1	Dyna-Star 5:1	Viscount II 2.4:1
Drum Size	35 lb (16 kg)	120 lb (55 kg)	400 lb (180 kg)	400 lb (180 kg)
Pump No.	**224912**	**224751**	**224752**	**222902**
Maximum Hydraulic Input Pressure	1500 psi (102 bar)	1500 psi (102 bar)	1500 psi (102 bar)	1500 psi (102 bar)
Maximum Hydraulic Fluid Input Vol.	3 gpm (11.4 lpm)	3 gpm (11.4 lpm)	3 gpm (11.4 lpm)	7.5 gpm (28.3 lpm)
Max Flow Output Rate	4 lb/min (1.8 kg)	4 lb/min (1.8 kg)	4 lb/min (1.8 kg)	9 lb/min (4.1 kg)
Maximum CPM	60	60	60	60
Maximum Fluid Output Pressure	7500 psi (517 bar)	7500 psi (517 bar)	7500 psi (517 bar)	3600 psi (248 bar)
Hydraulic Supply Inlet	3/8 npt	3/8 npt	3/8 npt	3/4 npt
Hydraulic Return Outlet	3/4 npt	3/4 npt	3/4 npt	1 npt
Fluid Outlet	1/2 npt	1/2 npt	1/2 npt	1-1/2 npt
Maximum Incoming Hydraulic Fluid Temp.	130º F (54º C)	130º F (54º C)	130º F (54º C)	130º F (54º C)
Instruction Manual	308156	308156	308156	308149

Accessories

Follower Plates

224916 Follower plate for 35 lb (16 kg)

223700 Follower plate for 120 lb (55 kg)

223701 Follower plate for 400 lb (180 kg)

Covers

224915 Cover for 35 lb (16 kg)

204574 Cover for 120 lb (55 kg)

200326 Cover for 400 lb (180 kg)

Tie-Down Covers

222060* Tie-Down Cover for 120 lb (55 kg)

207366** Tie-Down Cover for 400 lb (180 kg)

** Use with hold-down kit #222061*
***Use with hold-down kit #207361*

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Fast-Flo® (Stainless Steel) 56-57
Air-Operated Double-Diaphragm 58-59
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Fast-Flo® 1:1
Transfer Pumps

4

Features and Benefits
- Stainless steel models available for corrosion resistance
- Differential air motor for smooth operation and reliability

Typical Application
- Low pressure, high volume transfer of low viscosity fluids
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Water
- Anti-freeze
- Windshield wash fluid
- Used Oil
- Used Anti-freeze

See page 8 and 9 for Fast-Ball 1:1 petroleum-based products.

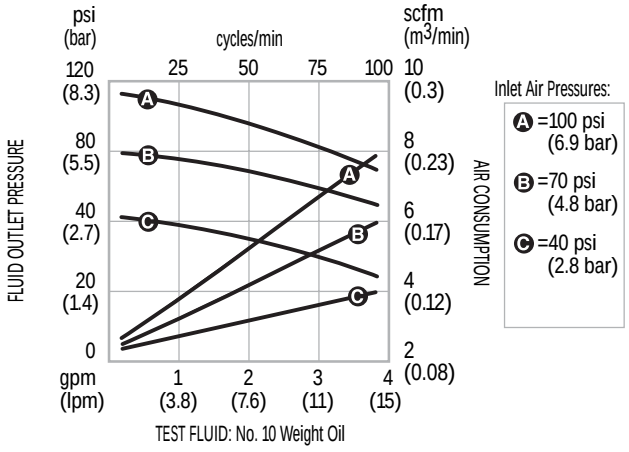
226948

226947

Technical Specifications

Minimum Operating Air Pressure	40 psi (2.8 bar, 0.28 MPa)
Maximum Operating Air Pressure	180 psi (12.4 bar, 1.24 MPa)
Max Operating Air Pressure for #226951	60 psi (4.2 bar, 0.42 MPa)
Maximum Fluid Working Pressure	180 psi (12.4 bar, 1.24 MPa)
Effective Air Motor Diameter	1.4 in (35.6 mm)
Air Inlet	1/4 npt(f)
Fluid Inlet Size (for universal pumps)	1-1/2 npt(f)
Fluid Outlet Size	3/4 npt(f)
Flow Rate	5 gpm (19 lpm)
Maximum Operating Temperature	120ºF (49ºC)
Weight (all models except #226951)	11 lb (5 kg)
Weight for #226951	20 lb (9 kg)
Instruction Manual	307427

Pump Performance



TEST FLUID: No. 10 Weight Oil

Fast-Flo 1:1
Transfer Pumps

Ordering Information for Fast-Flo 1:1 Universal-Length Pumps (includes motor and pump-lower assembly)

Order No.	226948	226952	237130	237131	237132	226943*	226944**	226945**
Accessories								
Material of Construction	CS	SST	CS	CS	SST	CS	CS	SST
Standard Seal Repair Kits Kit Order No.	218112	218112	213012	213013	213013	213012	215964	215964
Material of Construction	Rubber	Rubber	Leather	PTFE	PTFE	Leather	Polyethylene	Polyethylene
Typical Fluids	Motor Oil	Motor Oil	Motor Oil	Motor Oil	Motor Oil	Motor Oil	Motor Oil	Anti-freeze Windshield Wash

(Note: All seal repair kits are interchangeable with other Fast-Flo pumps.)

Ordering Information for Fast-Flo 1:1 Drum-length Pumps (includes motor and pump-lower assembly)

Order No.	226947	226951†	226953	237133	237134	237129	226940	226941	226942
Accessories									
Material of Construction	CS	CS	SST	CS	CS	SST	CS	CS	SST
Standard Seal Repair Kits Kit Order No.	218112	218112	218112	213012	213013	213013	213012	215964	215964
Material of Construction	Rubber	Rubber	Rubber	Leather	PTFE	PTFE	Leather PTFE/Leather	Polyethylene UHMWPE	Polyethylene UHMWPE
Typical Fluids	Motor Oil	Motor Oil	Motor Oil	Motor Oil	Motor Oil	Motor Oil	Motor Oil	Motor Oil	Anti-freeze Windshield Wash

(Note: All seal repair kits are interchangeable with other Fast-Flo pumps.)

Motor Service Kits for all Fast-Flo 1:1

220168 Air Valve Piston Assembly
(used with repair kit #214584, which must be ordered separately)

* *UL-listed*
** *UL-listed and CE-marked*
† *Adjustable down tube length between 18 in (457 mm) to 46.4 in (1180 mm)*

Diaphragm Pumps
Transfer Pumps

4

Quick Reference

Body / Diaphragm Description	Part Number	Ratio	Max. Air psi (bar)	Typical Application	Free Flow Rate gpm (lpm)	Max. Rec CPM
307 3/8" Diaphragm Pump						
Acetal / Hytrel	D31255	1:1	100 (7)	OT, WA, WWS*	7 (31.8)	330
515/716 3/4" Diaphragm Pump						
Aluminum / Buna N	241906	1:1	100 (7)	OT, OE, WA, WWS	16 (60.6)	400
Acetal / Buna Dual Inlet	243669	1:1	100 (7)	50/50 WWS, WA	16 (60.6)	400
1040 1" Diaphragm Pump						
Aluminum / Hytrel	D73525	1:1	120 (8.3)	OT, WA, OE	40 (151.4)	276
Aluminum / Hytrel (UL)	236265	1:1	120 (8.3)	OE, FT**, WA	40 (151.4)	276
Aluminum / Hytrel (UL)	236267	1:1	50 (3.4)	FD**	20 (75.7)	130
1590 1-1/2" Diaphragm Pump						
Aluminum / Hytrel	DB3525	1:1	120 (8.3)	OT, OE, WA	90 (340.6)	200
2150 2" Diaphragm Pump						
Aluminum / Hytrel	DF3525	1:1	120 (8.3)	OT, OE, WA	150 (567)	145
3275 3" Diaphragm Pump						
Aluminum / Hytrel	DK3525	1:1	120 (8.3)	OT, OE, WA	275 (1,041)	135

Note: See page 149 for other diaphragm pump packages

** See page 139 for windshield wash solution 307 Package 237160.*

*** For use with leaded fuel*

**** For use with unleaded fuel*

D31255

241906

236265

DB3525

DF3525

DK3525

Key

OT = Oil Transfer
OE = Oil Evacuation
WA = Water, Anti-freeze
FD = Fuel Dispense (with 50 psi relief valve)
FT = Fuel Transfer
WWS = Windshield Wash Solution

Air Consumption SCFM	Air Inlet NPT	Fluid Inlet/ Outlet NPT	Air Motor Kit	Kits (Seats Balls, Diaphragms)	Diaphragm Kit	Manual No.
7	1/4	3/8	239952	D03255	D03005	308553
28	1/4	3/4	241657	D05277	D05007	308573
28	1/4	3/4	241657	D05277	D05007	
40	1/2	1	236273	D07525	D07005	308326
40	1/2	1	236273	D07525	D07005	and
20	1/2	1	236273	D07525	D07005	308479
90	1/2	1-1/2	236273	D0B525	D0B005	308441
175	1/2	2	236273	D0F525	D0F005	308368
325	3/4	3	238765	D0K525	D0K005	308639

Mounting Accessories

Pump	307	515/716	1040	1590	2150	3275
Air Line Filter	110146	110146	106148	106149	106150	106150
Air Regulator & Gauge	110147	110147	244844	202858	206199	207651
Air Quick-Connect Coupler	208536 1/4 npt (f)	208536 1/4 npt (f)	110199 1/2 npt (f)	110199 1/2 npt (f)	110199 1/2 npt (f)	N/A
Air Quick-Connect Nipple	169970 1/4 npt (m)	169970 1/4 npt (m)	110196 1/2 npt (m)	110196 1/2 npt (f)	110196 1/2 npt (f)	N/A
Bleed Type Air Valve	110223	110223	110224	110225	110225	110226
Wall Bracket	224835	224835	189233	N/A	N/A	N/A
Thermal Relief Kit	238899	238428	238428	N/A	N/A	N/A
Thermal Relief Valves 150 psi (10.3 bar)	113497 al/bn 112119 ss/tf	113497 al/bn 112119 ss/tf	113497 al/bn 112119 ss/tf	113497 al/bn 112119 ss/tf	113497 al/bn 112119 ss/tf	113497 al/bn 112119 ss/tf
Grounding Wire and Clamp	222011	222011	222011	222011	222011	222011
Suction Hose Kit	236054	236054	236054	N/A	N/A	N/A
Flange Adapter Kit	N/A	N/A	N/A	N/A	N/A	239392 (CS) 239391 (SST)
Dual Inlet Manifold	N/A	*	685984**	N/A	N/A	N/A
Instruction Manual	308553	308573 and 308981	308326 & 308479	308441	308368	308639

**243669 comes with dual inlet, see page 58*
***Dual inlet must be ordered separately for 685984*

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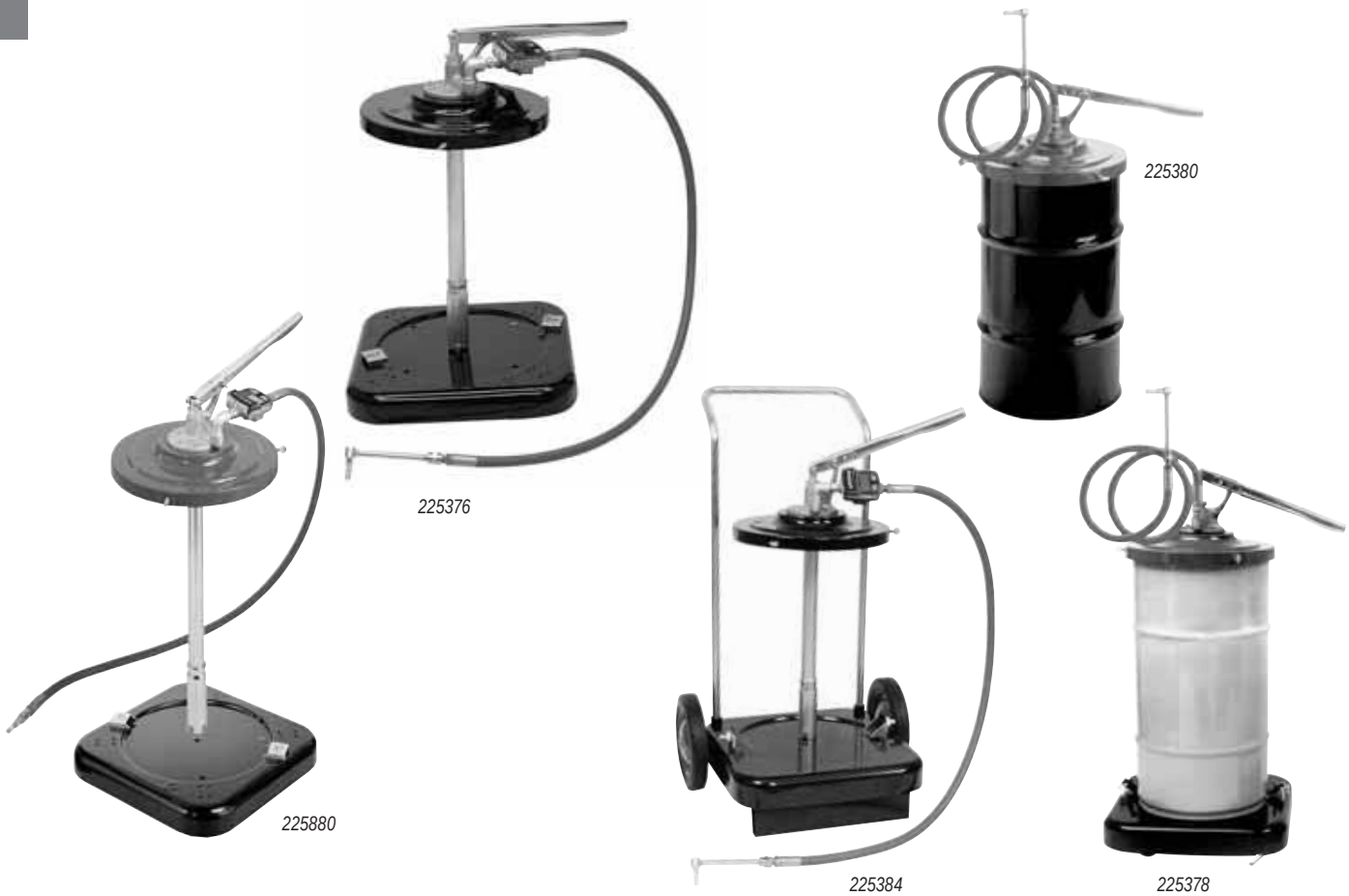
Manual Oil Pumps
Manual Oil and Grease Pumps

16 gal (60 l) Metered and Non-Metered Dispensing Packages

Designed for manual dispensing of fluid oil from bulk containers to point of application.

Description	Portable Metered ATF Dispenser	Portable Metered Gear Lube Dispenser	Cart-Mounted Metered Gear Lube Dispenser	Stationary Non-Metered Gear Lube Dispenser	Portable Non-Metered Gear Lube Dispenser
Package No.	**225880**	**225376**	**225384**	**225380**	**225378***
Pump No.	204867	204867	204867	204867	204867
Metered Dispense Kit	239707	239705	239705	-	-
Dispense Kit	-	-	-	214658	214658
Hose Diameter	-	-	1/2 in (12.7 mm)	1/2 in (12.7 mm)	1/2 in (12.7 mm)
Hose Length	-	-	6 ft (1.8 m)	6 ft (1.8 m)	6 ft (1.8 m)
Drum Cover	204574	204574	204574	204574	204574
Caster Base	203622	203622	-	-	203622
Cart	-	-	203650	-	-
Instruction Manual	306436	306436	306436	306436	306436



225880

225376

225380

225384

225378

** Hydraulic; can be used for gear oil dispensing.*

Manual Oil Pumps
Manual Oil and Grease Pumps

Pail Dispensing Package for 5 gal (20 l) Pails

Mounts on top of a standard 5 gal (20 l) pail (pail not included). Delivery hose has curved nozzle that stores in cover port.

Description	**Economy Gear-Lube Dispenser (Dispenses 1.6 to 1.9 oz. [47.3 to 56.2 ml] per stroke)**
Package No.	**226289**
Hose length	4 ft (1.2 m)
Instruction manual	306875

226289

5

Manual-Operated Transfer Pumps
Manual Oil and Grease Pumps

Pumping Bulk Lubricants out of 16 gal (60 l) or 55 gal (200 l) drums*

All pumps come with suction tube and bung adapter.

Description	Lever Pump**	Rotary Pump†	Hand-Lever Diaphragm Pump‡
Pump No.	**114829**	**226290**	**112202**
Delivery rate	0.1 gal (0.4 l) per downstroke	1 gal (3.7 l) per 18 cycles	1 gal (3.7 l) per 9 cycles
Fluids Handled	Petroleum-based products Anti-freeze	Petroleum-based products	Petroleum-based products+
Hose Length	-	-	8 ft (2.5 m)
Instruction manual	308896	306876	-

114829

226290

112202 includes down tube and hose

* *Drums not included*

** *Telescopic suction tube mounts 2 npt bung opening of 16 gal (60 l) or 55 gal (200 l) drum. Package includes bung adapter and spout outlet.*

† *Package has adjustable 2 npt bung mounting to allow use with either 16 gal (60 l) or 55 gal (200 l) drum. Package includes bung adapter and spout outlet.*

‡ *A double-action high volume pump for gasoline and similar petroleum products. Fits 30 gal (113 l) to 55 gal (200 l) drum. Complete with an 8 ft (2.4 m) hose with 3/4" fittings and aluminum telescoping suction pipe. Delivers approximately one gallon per nine strokes.*

\+ *This package is recommended for gasoline, diesel, heating oil and petroleum products, but is NOT recommended for water-based fluids, solvents or weak acids.*

Manual Grease Pumps
Manual Oil and Grease Pumps

Manual Dispense from Bulk Containers

	Buckshot Luber with Booster Gun	Buckshot Luber without Booster Gun	Grease Gun Fill Pump	Grease Gun Fill Pump
Container Size	35 lb (16 kg)	35 lb (16 kg)	35 lb (16 kg)	120 lb (55 kg)
Package No.	**225914***	**225844***	**112197****	**112198****
Pump	203702	203702	-	-
Dispense Kit	203703	203703	Filler Adapter+	Filler Adapter+
Booster Gun	203697	-	-	-
Cover and Follower Plate	203701	203701	-	-
Instruction Manual	306455	306455	-	-

225914

112197

112198

* *Delivers 1/4 oz (0.7 grams) of grease per stroke at pressures to 3000 psi (207 bar). Can service fittings directly or be used to charge a booster gun for more efficiency at higher pressures.*

** *Fills all three-way loading grease guns equipped with filler fittings. See instruction manual 308306 for filling adapters.*

\+ *Dispense kit #203703 can be used for direct greasing applications (must be ordered separately).*

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Hose Reels
Selection Guide

Hose Reel	250 Series	350 Series	500 Series	700 Series	750 Series
Hose Length	25 ft x 1/2 in (7.6 m x 12.7 mm)	50 ft x 1/2 in (15.2 m x 12.7 mm)	50 ft x 1/2 in (15.2 m x 12.7 mm)	75 ft x 1/2 in (22.9 m x 12.7 mm)	50 ft x 1 1/4 in (15.2 m x 31.7 mm)
Typical Application	• Medium-Duty • Auto Dealers • Fast Lubes • Service Shops • In-Plant	• Heavy-Duty • Auto Dealers • Heavy Duty Dealers • Fast Lubes • Fleet Service • Service Shops • In-Plant	• Severe-Duty • Auto Dealers • Heavy Duty Dealers • Fleet Service • Service Shops • In-Plant • Lube Trucks • Mining	• Supreme-Duty • Auto Dealers • Heavy Duty Dealers • Fleet Service • Service Shops • In-Plant • Lube Trucks • Mining	• Supreme-Duty • Heavy Duty Dealers • Fleet Service • Service Shops • In-Plant • Lube Trucks • Mining
Typical Fluids	• Synthetic Based Oils • Grease • Air • Water • Anti-Freeze • Windshield Wash	• Synthetic Based Oils • Grease • Air • Water • Anti-Freeze • Windshield Wash	• Synthetic Based Oils • Grease • Air • Water • Anti-Freeze • Windshield Wash	• Synthetic Based Oils • Air • Water • Anti-Freeze • Windshield Wash • Used Oil • Used Anti-Freeze	• Fuels • Synthetic Based Oils • Water • Anti-Freeze
Enclosed	Enclosed Option Available		Enclosed Option Available		
Reference Pages for Parts and Accessories	69-70	71-72	73-74	75-76	77

250 Series
Hose Reels

Features and Benefits
- Heavy-duty spring, bearings and latch for long life
- Can be installed as either open or enclosed reel
- Manufacturer-installed fluid hose stays flexible even under pressure for easier handling
- Fully ported swivel and shaft for unrestricted flow
- Cast ratchet assembly for positive lock

Typical Application
- Medium duty hose reel
- Automotive dealerships
- Fast lube centers
- Service shops
- In-plant

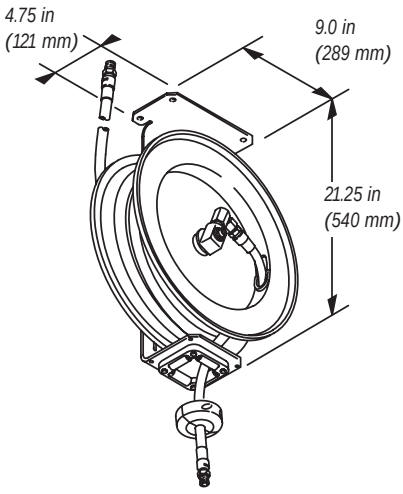
Typical Fluids Handled
- Petroleum and synthetic based oils
- Grease
- Air
- Water
- Anti-freeze
- Windshield wash fluid

240963
(includes 218549 hose inlet kit)

6

Technical Specifications

	Low-Pressure	Medium-Pressure	High-Pressure
Inlet	1/2 npsm(m)	1/2 npsm(m)	3/8 npsm(m)
Outlet	1/2 npsm(f)	1/2 npsm(f)	3/8 npsm(f)
Pressure Rating for Bare Hose Reel	1800 psi (124 bar, 12.4 MPa)	1800 psi (124 bar, 12.4 MPa)	8000 psi (552 bar, 55.2 MPa)
Bearings	brass	brass	brass
Wetted Parts	SST, brass, nitrile rubber	CS, brass, nitrile rubber	CS, brass, leather
Weight of Bare Hose Reel	50 to 75 lb (24.95 to 34.02 kg)	50 to 75 lb (24.95 to 34.02 kg)	50 to 75 lb (24.95 to 34.02 kg)
Instruction Manual	308899	308899	308899

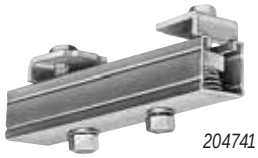


250 Series
Reels, Reel Packages, Accessories and Repair Kits

Low-Pressure Hose Reels (for air/water) rated to 180 psi (12.5 bar)
240956* Hose Reel with 1/2 in (12.7 mm) x 25 ft (7.6 m) hose
240958* Hose Reel with 1/4 in (6.4 mm) x 40 ft (12.2 m) hose
240959* Hose Reel with 3/8 in (9.5 mm) x 40 ft (12.2 m) hose
** Hose inlet kit included*

Medium-Pressure Hose Reels (for oil and light lubricants) rated to 1800 psi (126 bar)
240963* Hose Reel with 1/2 in (12.7 mm) x 25 ft (7.6 m) hose
** Hose inlet kit included*

High-Pressure Hose Reels (for grease) rated to 5000 psi (345 bar)
240967* Hose Reel with 1/4 in (6.4 mm) x 35 ft (10.6 m) hose
** Hose inlet kit included*


204741

204741 Mounting Bracket. Secures mounting channel to I-beam without drilling. Two brackets are required when mounting 1-3 reels; three brackets are required when mounting 4-6 reels.

Mounting Channels (includes all parts needed to mount hose reels to ceilings)

Enclosed		Open	
203521	For one reel	**241791**	For one reel
203522	For two reels	**241792**	For two reels
203523	For three reels	**241793**	For three reels
203524	For four reels	**241794**	For four reels
203525	For five reels	**241795**	For five reels
203526	For six reels	**241796**	For six reels

203521

Reel Enclosures
218546 Side enclosure (one kit required for each reel assembly)
218548 End panel (one kit required for each bank of reels)

Hose Inlet Kits (for bare hose reels and replacement orders)
218549 2000 psi (138 bar) for low- and medium-pressure reels (1/2 in [12.7 mm] x 24 in [0.6 m] length)
218550 4000 psi (276 bar) for high-pressure reels (1/4 in [6.4 mm] x 24 in [0.6 m] length)
224417 5000 psi (345 bar) for high-pressure reels (3/8 in [9.5 mm] x 24 in [0.6 m] length)

Swivel Repair Kits
224450 For low- and medium-pressure hose reels
237094 For high-pressure hose reels

218591 **Hose Roller Repair Kit**

224444 **Valve Hanger Kit**
Mounts to side of reel to allow hanging of unmetered and high flow dispensing valves

218546

Identification Labels
180698 Mylar® self-adhesive labels. 1 in x 5 in (25.4 mm x 127 mm) for labeling hose reels with the following headings:

Anti-Freeze	Water	SAE 5-40	SAE 10-40	SAE 20W
Hydraulic	Gear	SAE 10W	SAE 10-30	SAE 30W
Dexron	Air	Chassis	ATF	

Ball Stop Kits

Part Number	ID	Typical Hose ID
222225	.53	1/4 in (6.4 mm)
218340	.656	1/4 in and 3/8 in (6.4 mm and 9.5 mm)
218341	.782	3/8 in and 1/2 in (9.5 mm and 12.7 mm)

Mylar® is a registered trademark of Du Pont.

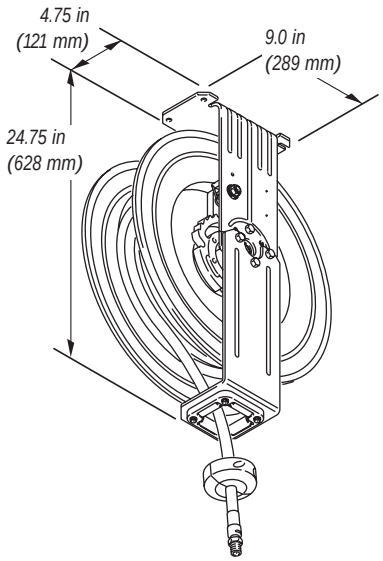
350 Series
Hose Reels

Features and Benefits
- Heavy-duty spring, bearings and latch construction for long life
- Handles up to 50 ft (15.3 m) of hose to cover wide area from single point
- Multi-position hose guide for varied mounting applications

237022
(hose inlet kit sold separately)

Typical Application
- Heavy duty hose reel
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant

Typical Fluids Handled
- Petroleum and synthetic based oils
- Grease
- Air
- Water
- Anti-freeze
- Windshield wash fluid



Technical Specifications

	Low-Pressure	Medium-Pressure	High-Pressure
Inlet	1/2 npsm(m)	1/2 npsm(m)	3/8 npsm(m)
Outlet	1/2 npsm(f)	1/2 npsm(f)	3/8 npsm(f)
Maximum Pressure for Bare Reel	1800 psi (126 bar)	1800 psi (126 bar)	8000 psi (550 bar)
Operating Temperature	-40ºF to 180ºF (-40ºC to 82ºC)	-40ºF to 180ºF (-40ºC to 82ºC)	-40ºF to 180ºF (-40ºC to 82ºC)
Bearings	brass	brass	brass
Wetted Parts	stainless steel, nitrile rubber, brass	carbon steel, nitrile rubber, brass	carbon steel, leather, brass
Weight	45 to 55 lb (20.4 to 25 kg)	45 to 55 lb (20.4 to 25 kg)	45 to 55 lb (20.4 to 25 kg)
Instruction Manual	308400	308400	308400

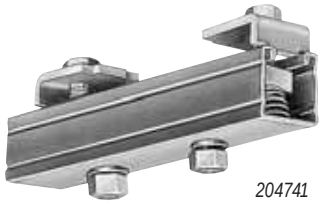
350 Series
Reels, Reel Packages, Accessories and Repair Kits

Low-Pressure Hose Reels with Universal Hose Guide (for air and water)
238213 Hose Reel with 3/8 in x 60 ft (9.5 mm x 18.3 m) hose rated to 180 psi (12.5 bar)
243983 Hose Reel with 1/2 in x 50 ft (12.7 mm x 15.3 m) hose rated to 180 psi (12.5 bar)

Medium-Pressure Hose Reels with Universal Hose Guide (for motor oil and light lubricants)
237020 Bare Hose Reel
237022 Hose Reel with 1/2 in x 50 ft (12.7 mm x 15.3 m) hose rated to 1800 psi (124 bar)

High-Pressure Hose Reels with Universal Hose Guide (for chassis grease)
237030 Bare Hose Reel
237032 Hose Reel with 1/4 in x 50 ft (6.4 mm x 15.3 m) hose rated at 5000 psi (345 bar)
237034 Hose Reel with 3/8 in x 50 ft (9.5 mm x 15.3 m) hose rated at 4000 psi (276 bar)

Mounting Bracket
204741 Secures mounting channel to I-beam without drilling. Two brackets are required when mounting 1-3 hose reels; three brackets are required when mounting 4-6 hose reels.


204741

Mounting Channels (includes all parts needed to mount hose reels to ceiling)
241791 For one reel
241792 For two reels
241793 For three reels
241794 For four reels
241795 For five reels
241796 For six reels

Hose Inlet Kits (order separately; does not come with 350 Series reels)
218549 2000 psi (138 bar) for low- and medium-pressure reels (1/2 in x 2 ft [12.7 mm x 0.6 m] length)
218550 4000 psi (276 bar) for high-pressure reels (3/8 in x 2 ft [9.5 mm x 0.6 m] length)
224417 5000 psi (345 bar) for high-pressure reels (1/4 in x 2 ft [9.1 mm x 0.6 m] length)

218549

224444 Valve Hanger Kit
Mounts to side of reel to allow hanging of unmetered and high flow dispensing valves

Swivel Repair Kits
224450 For medium-pressure hose reel
237094 For high-pressure hose reel

218591 Hose Roller Repair Kit

Identification Labels
180698 Mylar® self-adhesive labels. 1 in x 5 in (25.4 mm x 127 mm) for labeling hose reels with the following headings:

Anti-Freeze	Water	SAE 5-40	SAE 10-40	SAE 20W
Hydraulic	Gear	SAE 10W	SAE 10-30	SAE 30W
Dexron	Air	Chassis	ATF	

Ball Stop Kits

Part Number	ID	Typical Hose ID
222225	.53	1/4 in (6.4 mm)
218340	.656	1/4 in and 3/8 in (6.4 mm and 9.5 mm)
218341	.782	3/8 in and 1/2 in (9.5 mm and 12.7 mm)

500 Series
Hose Reels

Features and Benefits
- Fully ported swivel and shaft for unrestricted flow
- Can be installed as enclosed or open reel
- Permanently-lubricated bearings for positive recoil and long life
- Extra-large audible ratchet lock so user knows when hose is locked in place
- Multi-position roller guide for superior service in any mounting position
- Handles up to 50 ft (15.2 m) of hose for oil or grease applications

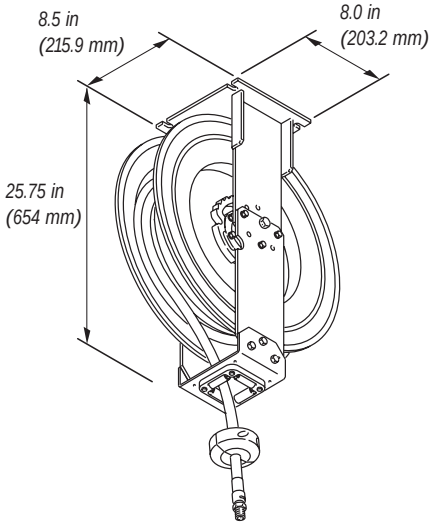
224058

Typical Application
- Severe duty hose reel
- Automotive dealerships
- Fleet service facilities
- In-plant
- Heavy duty dealerships
- Service shops
- Lube trucks
- Mining

Typical Fluids Handled
- Petroleum and synthetic based oils
- Grease
- Air
- Water
- Anti-freeze
- Windshield wash fluid

Technical Specifications

	Low- and Medium-Pressure	High-Pressure
Inlet	1/2 npsm(m)	3/8 npsm(m)
Outlet	1/2 npsm(f)	3/8 npsm(f)
Maximum Pressure For Bare Reel	1800 psi (124 bar)	8000 psi (552 bar)
Operating Temperature	-40ºF to 180ºF (-40ºC to 82ºC)	-40ºF to 180ºF (-40ºC to 82ºC)
Bearings	oil-impregnated bronze	oil-impregnated bronze
Wetted Parts	carbon steel, nitrile rubber polyester elastomer	carbon steel, nitrile rubber polyester elastomer
Weight of Bare Hose Reel	56.5 to 73 lb (25.7 to 33 kg)	56.5 to 73 lb (25.7 to 33 kg)
Instruction Manual	308109	308109



500 Series
Reels, Reel Packages, Accessories and Repair Kits

Low-Pressure Hose Reels (for air or water) rated to 180 psi (12.5 bar)
224050 Bare Hose Reel
224051 Hose Reel with 3/8 in x 60 ft (9.5 mm x 18.3 m) hose
243982 Hose Reel with 1/2 in x 50 ft (12.7 mm x 15.3 m) hose

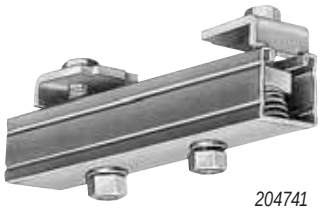
Medium-Pressure Hose Reels (for motor oil and light lubricants) rated to 1800 psi (124 bar)
224050 Bare Hose Reel
224058 Hose Reel with 1/2 in x 50 ft (12.7 mm x 15.3 m) hose

High-Pressure Hose Reels (for grease) rated to 8000 psi (552 bar)
224060 Bare Hose Reel

High-Pressure Hose Reels (for grease) rated to 5000 psi (345 bar)
224055 Hose Reel with 1/4 in x 50 ft (6.4 mm x 15.3 m) hose

High-Pressure Hose Reels (for grease) rated to 4000 psi (276 bar)
224056 Hose Reel with 3/8 in x 50 ft (9.5 mm x 15.3 m) hose

204741 Mounting Bracket
Secures mounting channel to I-beam without drilling. Two brackets are required when mounting 1-3 reels.


204741

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Mounting Channels
218679 For one reel
218680 For two reels
218681 For three reels

Enclosures
218551 Side enclosure kit (one required for each reel assembly)
218552 End panel kit (one required for each bank of reels)

218551

Hose Inlet Kits*
218549 2000 psi (138 bar) for low- and medium-pressure hose reels.
Includes 1/2 in x 24 in (12.7 mm x 0.6 m) hose and fittings
218550 4000 psi (276 bar) for high-pressure hose reels.
Includes 3/8 in x 24 in (9.5 mm x 0.6 m) hose and fittings
224417 5000 psi (345 bar) for high-pressure hose reels.
Includes 1/4 in x 24 in (6.4 mm x 0.6 m) hose and fittings
**Order hose inlet kits separately, does not come with 500 Series Hose Reel*

Metal Label Kits (includes one 3/4 in x 4-1/4 in (1.9 cm x 10.8 cm) metal label and mounts)

218670	Motor Oil	**218673**	ATF	**218676**	Water
218671	Grease	**218674**	Hydraulic Oil	**218677**	Anti-Freeze
218672	Gear Lube	**218675**	Air	**218678**	Evacuation

Swivel Repair Kits
224450 For low- and medium-pressure reels
224460 For high-pressure reels

218591 Hose Roller Repair Kit

218549

Ball Stop Kits

Part Number	ID	Typical Hose ID
222225	.53	1/4 in (6.4 mm)
218340	.656	1/4 in and 3/8 in (6.4 mm and 9.5 mm)
218341	.782	3/8 in and 1/2 in (9.5 mm and 12.7 mm)

700 Series
Hose Reels

Features and Benefits
- Fully ported swivel and shaft for unrestricted flow
- Handles hose lengths up to 75 ft (23 m)
- Heavy-duty ball bearings outlast sleeved-type bearings
- Easy rewind with minimal hose guidance

Typical Application
- Supreme duty hose reel
- Automotive dealerships
- Fleet service facilities
- In-plant
- Heavy duty dealerships
- Service shops
- Lube trucks
- Mining

Typical Fluids Handled
- Petroleum and synthetic based oils
- Air
- Water
- Anti-freeze
- Windshield wash fluid
- Used Oil
- Used Anti-freeze

237875 shown with 237932

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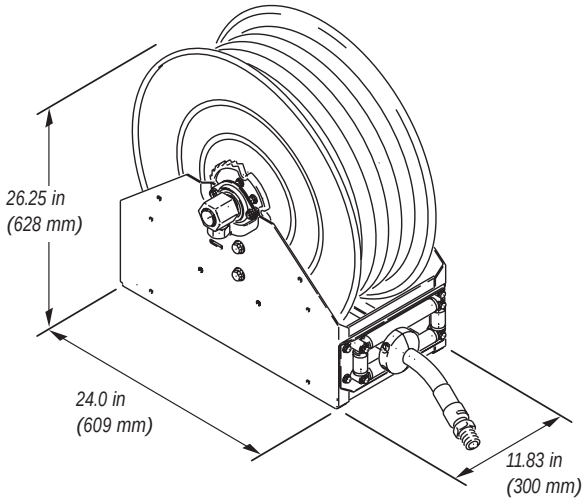
Technical Specifications

Inlet	1 npt(f)
Outlet	1 npt(f)
Maximum Pressure (bare reel)	1500 psi (103 bar)
Maximum Vacuum	24 in Hg
Operating Temperature	-40ºF to 180ºF (-40ºC to 82ºC)
Bearings	self-aligning, sealed ball bearings (steel alloy)
Wetted Parts	carbon steel, Viton
Weight (bare reel)	103 lb (46.7 kg)
Instruction Manual	308546



700 Series
Reels, Reel Packages, Accessories and Repair Kits

Medium-Pressure Oil Dispense Reels (rated to 1500 psi/103 bar)
237728 Bare Hose Reel
237875 Hose Reel with 1/2 in x 75 ft (12.7 mm x 23 m) hose
237881 Hose Reel with 3/4 in x 50 ft (19.1 mm x 15 m) hose
237879* Hose Reel with 3/4 in x 75 ft (19.1 mm x 23 m) hose
**Not recommended for overhead installation*

Medium-Pressure Oil Evacuation and Dispense Reels (rated to 212 psi/14.6 bar)
241909 Hose Reel with 1 in x 30 ft (25.4 mm x 9 m) hose; 24 in (0.3 m) Hg vacuum
241910 Hose Reel with 1 in x 50 ft (25.4 mm x 15 m) hose; 24 in (0.3 m) Hg vacuum

Medium-Pressure Fuel Dispense Reel (rated to 125 psi/8.6 bar)
237884* Hose Reel with 1 in x 50 ft (25.4 mm x 15 m) hose
**Not recommended for overhead installation*

Mounting Bracket
237932* Overhead mounting kit includes all parts needed for ceiling-mounting reel. (one required per reel.)

237944* Roller support kit includes roller support accessories for ceiling mounted reels (reel not included).

109064 Hose inlet kit 1 (mbe) x 28 in (71 cm)
**Required for overhead mounting*

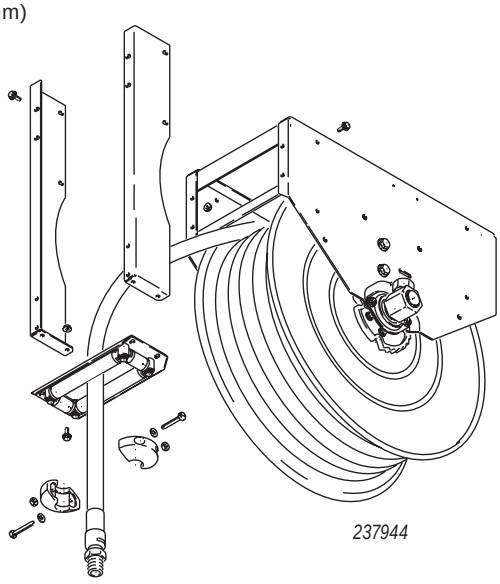
Swivel Repair Kit
237901 Includes swivel service parts only

Identification Labels
180698 Mylar® self-adhesive labels. 1 in x 5 in (25.4 mm x 127 mm) for labeling hose reels with the following headings:

Anti-Freeze	Water	SAE 5-40	SAE 10-40	SAE 20W
Hydraulic	Gear	SAE 10W	SAE 10-30	SAE 30W
Dexron	Air	Chassis	ATF	

Ball Stop Kits

Part Number	ID	Typical Hose ID
218341	.782	3/8 in and 1/2 in (9.5 mm and 12.7 mm)
237872	1.0	5/8 in (15.9 mm)
237873	1.123	3/4 in (19.1 mm)
237874	1.374	1 in (25.4 mm)


237944

750 Series
Hose Reels

Features
- Heavy-duty, high volume reel
- Industrial-grade paint for high abrasion and corrosion resistance
- Full-flow shaft
- Heavy-duty brackets and springs
- Rugged base and hose rollers
- Heavy-duty latch mechanism

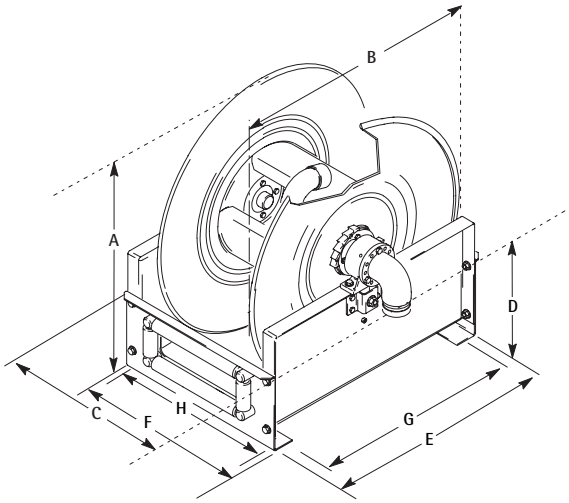
Typical Application
- Heavy duty dealerships
- Service shops
- Lube trucks
- Fleet service facilities
- In-plant
- Mining

Typical Fluids Handled
- Unleaded, leaded and diesel fuels
- Petroleum and synthetic based oils
- Water
- Anti-freeze

Technical Specifications

Dimensions	26.25 in L x 26.25 in H x 17.5 in W (667 mm L x 667 mm H x 445 mm W)
Inlet Size	1-1/2 npt(f)
Outlet Size	1-1/2 npt(f)
Working Temperature	150º F (65º C)
Weight	139 lbs (63 kg)
Maximum Working Pressure	375 psi (26 bar; 2.6 MPa)
Hose Capacity (not included)	50 ft (15.2m) x 1.50 in ID Hose
Instruction Manual	309442

Ordering Information
245410 Medium-pressure fuel dispense reel (rated to 125 psi/8.6 bar)



Dimensions
- A. 26.25 in (667 mm) overall height
- B. 26.25 in (667 mm) overall length
- C. 21.88 in (556 mm) overall width
- D. 13.75 in (349 mm) base to port center
- E. 24.25 in (616 mm) base length
- F. 17.50 in (445 mm) base width
- G. 22.125 in (562 mm) mounting hole length
- H. 13.50 in (343 mm) mounting hole width

Packages
Hose Reels

250 Series Open Hose Reel Packages

Description	Hose Reel Assembly	Hose Reel No.	Hose Part No*	Size	Max. Pressure psi (bar)	Ball Stop Kit*	Dispense Valve
Air Reel	**224846**	240958	218491	1/4" x 40' (6.4 mm x 12.2 m)	180 psi (12 bar)	218341	218544
Air Reel	**224847**	240959	218497	3/8" x 40' (9.5 mm x 12.2 m)	180 psi (12 bar)	218341	218545
Air Reel	**224848**	240956	202573	1/2" x 25' (12.7 mm x 7.6 m)	180 psi (12 bar)	218341	218544/159842
Water Reel	**224930**	240958	218491	1/4" x 40' (6.4 mm x 12.2 m)	180 psi (12 bar)	218341	180685
Water Reel	**224931**	240959	218497	3/8" x 40' (9.5 mm x 12.2 m)	180 psi (12 bar)	218341	180685/150287
Water Reel	**224932**	240956	202573	1/2" x 25' (12.7 mm x 12.2 m)	180 psi (12 bar)	218341	180685/159842
Motor Oil	**223147**	240963	220608	1/2" x 25' (12.7 mm x 7.6 m)	1000 psi (69 bar)	218341	238461
ATF	**223149**	240963	220608	1/2" x 25' (12.7 mm x 7.6 m)	1000 psi (69 bar)	218341	238462
Gear Lube	**218453**	240963	220608	1/2" x 25' (12.7 mm x 7.6 m)	1500 psi (104 bar)	218341	222412
Gear Lube	**223151**	240963	220608	1/2" x 25' (12.7 mm x 7.6 m)	1000 psi (69 bar)	218341	238463
Chassis Grease	**218443**	240967	109156	1/4" x 35' (6.4 mm x 10.7 m)	5000 psi (345 bar)	222225	242056**

** Included in hose reel*
*** Includes Z-swivel #202577*

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250 Series Enclosed Hose Reel Packages*

Description	Hose Reel Assembly	Hose Reel No.	Hose Part No**	Size	Max. Pressure psi (bar)	Ball Stop Kits**	Dispense Valve	Side Enclosure
Air or Water	**224837**	240958	218491	1/4" x 40' (6.4 mm x 12.2 m)	180 psi (12 bar)	218341	n/a	218546
Air or Water	**224838**	240959	218497	3/8" x 40' (9.5 mm x 12.2 m)	180 psi (12 bar)	218341	n/a	218546
Air or Water	**224839**	240956	205273	1/2" x 25' (12.7 mm x 7.6 m)	180 psi (12 bar)	218341	n/a	218546
Air	**224840**	240958	218491	1/4" x 40' (6.4 mm x 12.2 m)	180 psi (12 bar)	218341	159842/218544	218546
Air	**224841**	240959	218497	3/8" x 40' (9.5 mm x 12.2 m)	180 psi (12 bar)	218341	218545	218546
Air	**224842**	240956	205273	1/2" x 25' (12.7 mm x 7.6 m)	180 psi (12 bar)	218341	218545	218546
Water	**224843**	240958	218491	1/4" x 40' (6.4 mm x 12.2 m)	180 psi (12 bar)	218341	180685	218546
Water	**224844**	240959	218497	3/8" x 40' (9.5 mm x 12.2 m)	180 psi (12 bar)	218341	150287/180685	218546
Water	**224845**	240956	205273	1/2" x 25' (12.7 mm x 7.6 m)	180 psi (12 bar)	218341	159842/180685	218546
Motor Oil	**220483**	240963	220608	1/2" x 25' (12.7 mm x 7.6 m)	1500 psi (104 bar)	218341	n/a	218546
Motor Oil	**223131**	240963	220608	1/2" x 25' (12.7 mm x 7.6 m)	1000 psi (69 bar)	218341	238461	218546
ATF	**223133**	240963	220608	1/2" x 25' (12.7 mm x 7.6 m)	1000 psi (69 bar)	218341	238462	218546
Gear Lube	**218437**	240963	220608	1/2" x 25' (12.7 mm x 7.6 m)	1500 psi (104 bar)	218341	222412	218546
Gear Lube	**223135**	240963	220608	1/2" x 25' (12.7 mm x 7.6 m)	1000 psi (69 bar)	218341	238463	218546
Chassis Grease	**218429**	240967	109156	1/4" x 35' (6.4 mm x 10.7 m)	5000 psi (345 bar)	222225	242056†	218546

** 218548 end panels not included*
*** Included in hose reel*
† Includes Z-Swivel #202577

Packages
Hose Reels

500 Series Low and Medium Pressure Open Hose Reel Packages

Description	Hose Reel Assembly	Hose Reel No.	Hose Part No*	Size	Max. Pressure psi (bar)	Ball Stop Kit*	Dispense Valve
Air	**224352**	224051	218498	3/8" x 60' (9.5 mm x 18.3 m)	180 psi (12 bar)	218341	218545
Water	**224354**	224051	218498	3/8" x 60' (9.5 mm x 18.3 m)	180 psi (12 bar)	218341	180685
Motor Oil	**224382**	224058	221093	1/2" x 50' (12.7 mm x 15.2m)	1000 psi (69 bar)	218341	238461
ATF	**224384**	224058	221093	1/2" x 50' (12.7 mm x 15.2m)	1000 psi (69 bar)	218341	238462
Gear Lube	**224362**	224058	221093	1/2" x 50' (12.7 mm x 15.2m)	1500 psi (104 bar)	218341	222412
Gear Lube	**224380**	224058	221093	1/2" x 50' (12.7 mm x 15.2m)	1000 psi (69 bar)	218341	238463

Must order hose inlet kits separately
** Included in hose reel*

500 Series High Pressure Open Hose Reel Packages

Description	Hose Reel Assembly	Hose Reel No.	Hose Part No*	Size	Max. Pressure psi (bar)	Ball Stop Kit*	Dispense Valve
Chassis Grease	**224364**	224055	109158	1/4 " x 50' (6.4 mm x 15.2 m)	5000 psi (345 bar)	222225	242056**
Chassis Grease	**224366**	224056	109170	3/8" x 50' (9.5 mm x 15.2 m)	4000 psi (276 bar)	218340	242056**

** Included in hose reel*
*** Includes Z-Swivel #202577*

Dual Hose Reel

Description	Hose Reel No. (Bare)	Hose Part No.	Size	Max. Pressure psi (bar)	Ball Stop Kit	Dispense Valve
Dual Hose Reel	**206941**	109170*	3/8" x 50' (9.5 mm x 15.2 mm)	3000 psi (207 bar)	218340*	n/a
		221093*	1/2" x 50' (12.7 mm x 15.2 mm)	3000 psi (207 bar)	218341*	n/a

**Must be ordered separately*

700 Series Hose Reel Packages

Description	Hose Reel Assembly	Hose Reel No.	Hose Part No.	Size	Ball Stop Kit	Max. Pressure psi (bar)
Oil Dispensing	**237875**	237728	237861	1/2" x 75' (12.7 mm x 22.9 m)	237871	1500 psi (104 bar)
Oil Dispensing	**237879**	237728	237865	3/4" x 75' (19.1 mm x 22.9 m)	237873	1500 psi (104 bar)
Oil Dispensing	**237881**	237728	237866	3/4" x 50' (19.1 mm x 15.2 m)	237873	1500 psi (104 bar)
Oil Dispensing and Evacuation	**241910**	237728	241908	1" x 50' (25.4 mm x 15.2 m)	237874	212 psi (15 bar)
Oil Dispensing and Evacuation	**241909**	237728	241907	1" x 30' (25.4 mm x 9.1 m)	237874	212 psi (15 bar)
Fuel Dispensing	**237884**	237728	237869	1" x 50' (25.4 mm x 15.2 m)	237874	125 psi (9 bar)

Dispense Console

Multi-Station Consoles

222629 Six-Station Console
Includes upper and lower floor plates with roller guides and brackets (1-110236; 5-196471) to hold one water bibb and five Graco EM5 dispense valves.
Console Dimensions (without brackets):
27 in high x 54 in long x 12 in wide
(68.58 cm high x 139.7 cm long x 25.4 cm wide)
Console requires a floor opening of 6 in x 51 in (15.2 cm x 122.4 cm)

223448 Four-Station Console
Includes upper and lower floor plates with roller guides and brackets (1-110236; 3-196471) to hold one water bibb and three Graco EM5 dispense valves. Console requires floor opening of 6 in x 33 in (15.2 cm x 83.8 cm).

222645 Single Add-On Fluid Module
For adding-on to four- or six-station consoles. Includes add-on module, floor plates with roller guides to fit module and one bracket #191155 for motor oil/automatic transmission fluid dispense valves. Console requires floor opening of 6 in x 8-1/2 in (15.2 cm x 21.6 cm).
Add-on fluid module dimensions 27 in high x 9 in long x 10 in wide
(68.5 cm high x 22.86 cm long x 25.4 cm wide).

222629

6

Lubricant Dispense Consoles Accessories

110236 Water Bibb Bracket

110237 EM6 Mounting Bracket

110285 Pistol-Grip Dispense Valve Bracket

196471 Universal Dispense Valve Bracket for EM5 and PM5

15B750 Matrix Dispense Valve Bracket

218591 Roller Repair Kit (floor console)

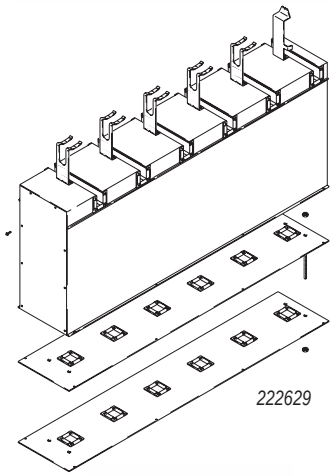
178670 Roller only

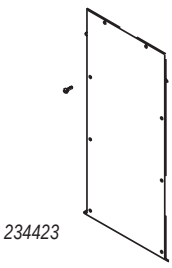
222641 Roller Repair Kit (upper part of console)

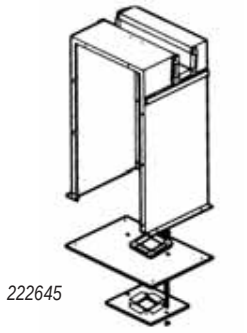
234423 End Panel Replacement comes with 8 screws

237974 4 Station Floor Plate Kit

237973 6 Station Floor Plate Kit


222629


234423

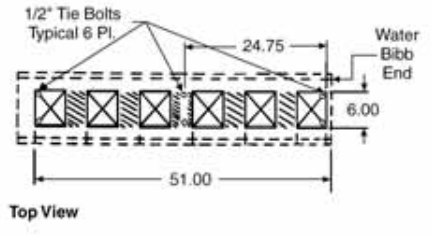

222645

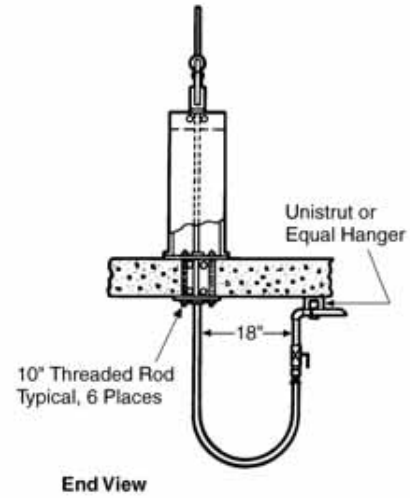
Dispense Console

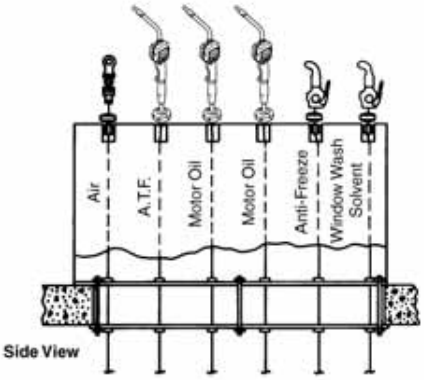
Typical System Installation

= Hose guide opening. Openings may be individual or in groups of two, three or a continuous opening of 6 in. wide x 51 in. long (15.2 cm x 1.3 m). All dimensions ± .25 in. (6.35 mm).

= Area available for concrete reinforcement across 6 in. (15.2 cm) dimension.







6 Unit Dispense Console

Oil Dispense Bar

220107 Oil Dispense Bar
Tough metal cabinet with baked-on enamel finish. Constructed with single-dispense tap and waste pan with plated, perforated metal service area and drain connection. Modular convenient design allows up to 3 oil dispense taps or meters to be added at the time of installation, or later if required. Instruction manual 307742. Maximum working pressure 900 psi (62 bar). 22.6 in H x 13.25 in D x 18.3 in W (57.4 cm H x 33.7 cm D x 46.5 cm W)

220112 Tap Kit
Add to oil dispense bar to convert into two or three taps, as needed. Kit also includes non-drip dispense valve, manifold and all necessary mounting hardware.

239706 Meter Kit
Any individual tap on the oil dispense bar can be fitted with a fluid meter. Kit includes meter #239824 and all necessary mounting hardware. Maximum working pressure 500 psi (34 bar).

220110 Spigot Valve Replacement

220107

Notes

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EM5™ Electronic Meter
Fluid Meters and Valves

Features and Benefits

- Dispenses in gallons, quarts, pints and liters
- Easy-to-use control pad
- Rugged trigger guard protects meter from damage
- Easy-to-replace 9-volt alkaline battery
- Resettable total for periodic reporting
- In-field calibration capability

238461

Typical Application

- Metered oil dispense
- Heavy duty dealerships
- Fleet service facilities
- For indoor use only
- Automotive dealerships
- Fast lube centers
- Service shops
- In-plant

Typical Fluids Handled

- Petroleum and synthetic based oils
- Anti-freeze

7

Technical Specifications

Flow Range* . . . . . 0.26 to 5 gpm (1 to 18.9 lpm)

Operating Pressure Range
For gear lube units . . . . . 20 to 1000 psi (1.4 to 69 bar, 0.7 to 7 MPa)
For motor oil units . . . . . 45 to 1000 psi (3.1-69 bar, 0.29 to 7 MPa)

Weight . . . . . 3 lb (1.36 kg)

Inlet . . . . . 1/2 npt

Outlet . . . . . 3/8 npt

Operating Temperature Range . . . . . 32 to 120ºF (0 to 48.8ºC)

Storage Temperature Range . . . . . -30 to 120ºF (-34.4 to 48.8ºC)

Battery** . . . . . 9 volt alkaline

Wetted Parts . . . zinc, SST #304, Zenite®, CS, polyurethane, nitrile rubber

Meter Valve Assembly Pressure Loss . . . . . 17 psi (1.2 bar, 0.12 MPa) @ 1.5 gpm (5.7 lpm) with 30 wt. oil @ 70ºF (21ºC)

Accuracy*** . . . . . ±0.5%

Repeatability**** . . . . . ±0.15%

Dimensions (without extension) . . . . . 11 in L x 3.25 in W x 3.25 H (27.9 cm L x 8.3 cm W x 8.3 cm H)

Instruction Manual 309142

** Tested in No. 10 motor oil. Flow rates vary with fluid pressure and viscosity.*

*** Battery required to meet safety approvals: Duracell® MN 1604, or Panasonic® 6AM6X*

**** At 2.5 gpm (9.5 lpm), at 70ºF (21ºC), with 10 weight oil and 1 gal (3.8 l) dispensed. May require calibration; out-of-box accuracy is ±1.25%*

*****At 2.5 gpm (9.5 lpm), at 70ºF (21ºC), with 10 weight oil and 1 gal (3.8 l) dispensed*

Zenite is a registered trademarks of Du Pont

Duracell® is a registered trademark of Duracell Inc.

Panasonic® is a registered trademark of Panasonic Industrial Co.

Not recommended for in-line installation.

EM5 Electronic Meter
Fluid Meters and Valves

Ordering Information

238461 EM5 Electronic Meter with rigid extension, U.S. measure
238457* EM5 Electronic Meter with rigid extension, Canadian weights & measures approved
238462 EM5 Electronic Meter with Flexible Extension, U.S. measure
238458* EM5 Electronic Meter with Flexible Extension, Canadian Weights & Measures Approved
238463 EM5 Electronic Meter with Gear Lube Extension (15º Bend with 90º Elbow), U.S. measure
238459* EM5 Electronic Meter with Gear Lube Extension (15º Bend with 90º Elbow), Canadian Weights & Measures Approved

**Available in Canada only*

Accessories

Nozzle Assembly Kits
239949 Rigid (includes nozzle, tube and locking nut)
239951 Flexible (includes nozzle, tube and locking nut)
238887 Gear Lube (includes nozzle, tube and locking nut)
239829 Automatic Nozzle
3/8 npt(f) inlet with 1/2 in diameter
238371 Gear Lube Nozzle
3/8 npt(f) inlet with 1/2 in diameter tip

Additional EM5 Accessories
240416 Inlet Swivel
114017 Inlet Filter, 80 mesh
196471 Valve Bracket for Dispense Console
240453 Valve Repair Kit
238555 Electronic Cover Control Assembly Kit

Swivel Cover
191286 Black (standard color, included with meter)
191287* Red
191288* Blue
191289* Green
191290* Yellow

Protective Boots *(with trigger guards)*
243758 Black (standard color, included with meter)
243835* Red
243836* Blue
243837* Green
243838* Yellow
239829* Automatic Nozzle Only

**Must be ordered separately*

239949

239951

238887

7

PM5™ Electronic Pre-Set Meter

Fluid Meters and Valves

Features and Benefits

- Automatic shut-off for hands-free operation
- Dispenses in gallons, quarts, pints and liters
- Rugged trigger guard protects meter from damage
- Easy-to-replace 9-volt alkaline battery
- Resettable total for periodic reporting
- In-field calibration capability

Typical Application

- Preset metered oil dispense
- Heavy duty dealerships
- Fleet service facilities
- In-plant
- Automotive dealerships
- Fast lube centers
- Service shops
- For indoor use only

Typical Fluids Handled

- Petroleum and synthetic based oils
- Anti-freeze

238511 shown

7

Technical Specifications

Flow Range* . . . . . 0.26 to 5 gpm (1 to 18.9 lpm)

Operating Pressure Range
For gear lube units . . . . . 20 to 1000 psi (1.4 to 69 bar, 0.7 to 7 MPa)
For motor oil units . . . . . 45 to 1000 psi (3.1-69 bar, 0.29 to 7 MPa)

Weight . . . . . 3 lb (1.36 kg)

Units of Measurement . . . . . .factory-set in quarts or liters
Maximum totalizer amount=99,999 gallons or liters
Maximum recorded dispensed volume=999.99 units
Maximum predetermined volume=99.999 units

Inlet . . . . . 1/2 npt

Outlet . . . . . 3/8 npt

Operating Temperature Range . . . . . 32 to 120ºF (0 to 49ºC)

Storage Temperature Range . . . . . -30 to 120ºF (-34 to 49ºC)

Battery** . . . . . 9-volt alkaline

Wetted Parts . . . . . zinc, SST #304, Zenite, CS, polyurethane, nitrile rubber

Meter Valve Assembly Pressure Loss . . . . . 17 psi (1.1 bar, 0.11 MPa)
(@ 1.5 gpm [5.7 lpm] with 30 wt. oil @ 70ºF [21ºC])

Accuracy*** . . . . . ±0.5%

Repeatability**** . . . . . ±0.15%

Dimensions (without extension) . . . . . 14 in L x 3.75 in W x 3.1 H
(35.6cm L x 9.5cm W x 7.9cm H)

Instruction Manual 308735

* *Tested in No. 10-weight motor oil. Flow rates vary with fluid pressure and viscosity.*

** *Battery required to meet safety approvals: Duracell MN 1604, or Panasonic 6AM6X*

*** *At. 2.5 gpm (9.5 lpm), at 70ºF (21ºC), with 10 weight oil and 1 gal (3.8 l) dispensed. May require calibration; out-of-box accuracy is ±1.25%*

**** *At 2.5 gpm (9.5 lpm), at 70ºF (21ºC), with 10 weight oil and 1 gal (3.8 l) dispensed*

Not recommended for in-line installation.

PM5 Electronic Pre-Set Meter
Fluid Meters and Valves

Ordering Information

238511 PM5 Electronic Pre-Set Meter, Rigid Extension, U.S. measure
238512 PM5 Electronic Pre-Set Meter, Flexible Extension, U.S. measure
238515 PM5 Electronic Pre-Set Meter, Off-set Extension (15º Bend with 90º Elbow), U.S. measure1

Accessories

Nozzle Assembly Kits
239949 Rigid (includes nozzle, tube and locking nut)
239951 Flexible
239950 Gear Lube
239829 Automatic Nozzle
3/8 npt(f) inlet with 1/2 in diameter
238371 Gear Lube Nozzle
3/8 npt(f) inlet with 1/2 in diameter

Additional PM5 Accessories
240416 Inlet Swivel
114017 Inlet Filter, 80 mesh
196471 Valve Bracket for Dispense Console
240453 Valve Repair Kit
238554 Electronic Cover Control Assembly Kit

Swivel Cover
191286 Black (standard color)
191287* Red
191288* Blue
191289* Green
191290* Yellow
**Must be ordered separately*

Protective Boots *(with trigger guards)*
243758 Black (standard color)
243835* Red
243836* Blue
243837* Green
243838* Yellow
**Must be ordered separately*

239949

239951

239950

7

EM6™ Electronic Meter
Fluid Meter and Valves

Features and Benefits
- Screw-tight nozzle for positive shut off
- Ball bearing swivel for ease of use
- Durable design ideal for use in harsh environments
- Resettable totals for periodic dispense history

Typical Application
- Metered oil dispense in demanding environments
- Automotive dealerships
- Fast lube centers
- Service shops
- Lube Trucks
- Heavy duty dealerships
- Fleet service facilities
- In-plant
- Mining

Typical Fluids Handled*
- Petroleum and synthetic based oils

** Not recommended for use with anti-freeze*

243599 shown

7

Technical Specifications

Maximum Recommended Flow Rate	6 gpm (23.01 lpm)
Maximum Operating Pressure	1500 psi (105 bar, 10.5 MPa,)
Operating Temperature Range	-40º to 180ºF (-40º to 82ºC)
Inlet	1/2 npt
Outlet	1/2 npt
Wetted Parts	aluminum, SST, CS, acetal, nitrile rubber, Geolast™
Instruction Manual	308642
Accuracy/Repeatability	+/- 0.6%

Geolast™ is a registered trademark of Advanced Elastomer Systems.

Color-coded Impact Guards for Electronic Meters
Color-code various fluids dispensed to reduce errors, match store colors, or create a customized appearance. For electronic meters only.

191782 Black
190383 Yellow
190384 Red
191784 Blue
190386 Green

191782

Ordering Information

243599 U.S. measure (rigid extension)
243600 U.S. measure (gear lube extension)
243601 U.S. measure (flexible extension)
243602 Metric measure (rigid extension)
243603 Metric measure (gear lube extension)
243604 Metric measure (flexible extension)
243992 1/2 in (12.7 mm) bare valve (without locking trigger)

Accessories

235878 U.S. Electronic Control Replacement
235901 Metric Electronic Control Replacement
203655 Twist Lock Nozzle Replacement 1/4 npt (m)
203687 Flex Extension, hose with 203655 tip
201701 Gear Lube Extension with tip
203265 Rigid Extension with tip

EM12™ Electronic Meter

Fluid Meter and Valves

Features and Benefits

- Locking trigger for hands-free operation
- High-flow capability provides up to 12 gpm (45 lpm)
- Rugged design withstands demanding environments
- Resettable totals for periodic dispense history

238641 shown

Typical Application

- High-flow metered oil dispense in demanding environments
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube Trucks
- Mining

Typical Fluids Handled*

- Petroleum and synthetic based oils

** Not recommended for use with anti-freeze*

7

Technical Specifications

Maximum Recommended Flow Rate	12 gpm (45.4 lpm)
Maximum Operating Pressure	1500 psi (105 bar, 10.5 MPa,)
Operating Temperature Range	-4º to 180ºF (-20º to 82ºC)
Inlet	1/2 npt and 3/4 npt
Outlet	1/2 npt
Wetted Parts	aluminum, SST, CS, acetal, nitrile rubber, Geolast
Instruction Manual	308642

EM12 Electronic Meter
Fluid Meters and Valves

Ordering Information

3/4 npt(f) swivel inlet with:
238636 U.S. measure 1/2 in (12.7 mm) rigid extension
238637 U.S. measure 1/2 in (12.7 mm) flexible extension

3/4 npt(f) swivel inlet with:
238638 Metric measure 1/2 in (12.7 mm) rigid extension
238639 Metric measure 1/2 in (12.7 mm) flexible extension

1/2 npt(f) swivel inlet with:
238640 U.S. measure 1/2 in (12.7 mm) rigid extension
238641 U.S. measure 1/2 in (12.7 mm) flexible extension

1/2 npt(f) swivel inlet with:
238642 Metric measure 1/2 in (12.7 mm) rigid extension
238643 Metric measure 1/2 in (12.7 mm) flexible extension

Bare Valves *(No meter or extension)*
238647 Has locking trigger and inline flow through 1/2 npt(f) swivel inlet; 1/2 npt(f) outlet

238646 Has locking trigger and inline flow through 3/4 npt(f) swivel inlet; 1/2 npt(f) outlet

238647

7

Accessories

235878 U.S. Electronic Control Replacement

235901 Metric Electronic Control Replacement

223920 Twist Lock Nozzle (high flow)
Optional nozzle for those wanting a manual twist lock-down type nozzle. Nozzle does not include an automatic feature like the standard nozzle.
1/2 npt(f) with 1 in diameter tip.

223920

238400 Automatic Nozzle
1/2 npt(f) with 1 in diameter tip

185416 Filter
40 mesh stainless steel

Color-coded Impact Guards for Electronic Meters
Use these to color-code the various fluids dispensed to reduce errors, match store colors, or create a customized appearance.
For electronic meters only.
191782 Black
190383 Yellow
190384 Red
191784 Blue
190386 Green

191782

IM5™ In-Line Meter

Fluid Meter and Valves

Features and Benefits

- Heavy-duty construction for outdoor use
- Easy-to-use meter dispenses pints, quarts, liters or gallons
- Easy-to-replace 9-volt alkaline battery
- Compatible with windshield wash solvent or anti-freeze

Typical Application

- Automotive dealerships
- Low-pressure in-line metering
- Fast lube centers
- Service shops
- In-plant

Typical Fluids Handled

- Petroleum and synthetic based oils
- Anti-freeze
- Windshield wash fluid

239824

7

Technical Specifications

Flow Range	0.5 to 5 gpm (1.9 to 19 lpm)
Maximum Working Pressure	500 psi (34 bar, 3.4 MPa)
Weight	1.8 lb (0.8 kg)
Units of Measurement* *(User selectable to gallons, quarts, pints, or liters.)*	factory-set quarts
Accuracy	± 0.5%
Inlet/Outlet *Note: Meter can be installed with flow in either direction.*	1/2 npt
Operating Temperature Range	-4 to 122ºF (-20 to 50ºC)
Storage Temperature Range	-13 to 122ºF (-25 to 50ºC)
Battery	9-volt, alkaline
Wetted Parts	nickel, zinc, Zenite, nitrile rubber
Instruction Manual	308687

**Display shows quantity in 0.01 increments up to 999.99 gallons, quarts, pints, or liters. Totalizes in gallons or liters up to 99,999 units.*

Ordering Information

239824 IM5 In-Line Meter

Accessories

107180 O-Ring Seal

IM6™ In-Line Meter
Fluid Meters and Valves

Features and Benefits
- Resettable totals for periodic dispense history
- Durable design ideal for rugged environments
- Nickel-cadmium battery for longer life
- Easy-to-use meter dispenses pints, quarts, liters or gallons
- Shock-resistant durability for impact conditions

244075

Typical Application
- Medium-pressure metering in demanding environments
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

7

Typical Fluids Handled*
- Petroleum and synthetic based oils

** Not recommended with anti-freeze or windshield wash*

Technical Specifications

Flow Range*	0.12 to 12.0 gpm (0.456 to 45.61 lpm)
Maximum Working Pressure	1500 psi (103 bar, 10.3 MPa)
Weight	1.9 lb (0.95 kg)
Operating Temperature Range	-4º to 130ºF (-20º to 55ºC)
Inlet	1/2 npt
Outlet	1/2 npt
Wetted Parts	aluminum, SST #304, CS, acetal, nitrile rubber, Geolast, nickel, bronze

**Tested in No. 10 motor oil. Flow rates vary with fluid pressure and viscosity.*

Ordering Information

244075	In-Line Meter (U.S.)
244076	In-Line Meter (Metric)
235878	Replacement Electronics (U.S.)
235901	Replacement Electronics (Metric)

V5™ Non-Metered Valve

Fluid Meters and Valves

Features and Benefits

- Locking trigger for hands-free operation
- Rugged cast-body design withstands harsh environments
- Built-in ball bearing swivel allows for ergonomic operation
- Inlet screen aids in keeping fluids clean

222412

Typical Application

- Non-metered oil dispense
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled

- Petroleum and synthetic based oils

Technical Specifications

Maximum Recommended Flow Rate	5 gpm (22.7 lpm)
Maximum Operating Pressure	1500 psi (103 bar, 10.4 MPa)
Weight	0.4 lb (0.2 kg)
Operating Temperature Range	-40º to 180º F (-40º to 82º C)
Inlet	1/2 npt
Outlet	1/2 npt
Wetted Parts	aluminum, SST, CS, acetal, nitrile rubber, Geolast
Instruction Manual	308642

Ordering Information

222411 1/2 npt(f) swivel inlet; 3/8 in (9.5 mm) rigid extension (for oil)

222413 1/2 npt(f) swivel inlet; 3/8 in (9.5 mm) flexible extension (for atf)

222412 1/2 npt(f) swivel inlet; 3/8 in (9.5 mm) 90º (gear lube)

238647

Bare Valve (No meter or extension)

238647 Has locking trigger and inline flow through 1/2 npt(f) swivel inlet; 1/2 npt(f) outlet

Accessories

203655 Twist Lock Nozzle
Manual-twist lock-down type nozzle

203687 Flex Extension, hose with 203655 tip

201701 Gear Lube Extension with tip

203265 Rigid Extension with tip

203655

V12™ Non-Metered Valve

Fluid Meters and Valves

Features and Benefits

- Locking trigger for hands-free operation
- Rugged cast-body design withstands harsh environments
- Built-in ball bearing swivel allows for ergonomic operation
- Inlet screen aids in keeping fluids clean

Typical Application

- High-flow, non-metered oil dispense
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

238652 shown

7

Typical Fluids Handled

- Petroleum and synthetic based oils

Technical Specifications

Maximum Recommended Flow Rate	12 gpm (45.4 lpm)
Maximum Operating Pressure	1500 psi (105 bar, 10.5 MPa)
Assembly Weight (no meter)	0.4 lb (0.18 kg)
Operating Temperature Range	-40º to 180º F (-40º to 82º C)
Inlet	1/2 npt and 3/4 npt
Outlet	1/2 npt
Wetted Parts	aluminum, SST, CS, acetal, nitrile rubber, Geolast
Instruction Manual	308642

Ordering Information

238651 1/2 npt(f) swivel inlet, 1/2 in (12.7 mm); rigid extension
238652 1/2 npt(f) swivel inlet, 1/2 in (12.7 mm); flexible extension
238644 3/4 npt(f) swivel inlet, 1/2 in (12.7 mm); rigid extension
238645 3/4 npt(f) swivel inlet, 1/2 in (12.7 mm); flexible extension

Bare Valves (No meter or extension)

238647 Has locking trigger and inline flow through 1/2 npt(f) swivel inlet; 1/2 npt(f) outlet
238646 Has locking trigger and inline flow through 3/4 npt(f) swivel inlet; 1/2 npt(f) outlet

Accessories

223920 Twist Lock Nozzle
Manual-twist lock-down type nozzle. Doesn't include an automatic feature like the standard nozzles.

223920

238400 Automatic Nozzle
1/2 npt(f) with 1 in diameter tip

Mechanically–Metered Valves
Fluid Meters and Valves

Features and Benefits
- Perfect for a wide variety of vehicle or machine service applications
- Balanced, lightweight, rugged construction, and comfort grip
- Cast aluminum housing with epoxy finish
- Non-resettable totalizing register

234114

Typical Application
- Metered oil dispense
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops
- In-plant
- Lube trucks
- Mining

Typical Fluids Handled
- Petroleum and synthetic based oils
- Anti-freeze

Technical Specifications

Maximum Flow*	4 gpm (15.1 lpm)
Minimum Flow*	0.4 gpm (1.5 lpm)
Maximum Operating Pressure	1000 psi (68.9 bar, 6.8 MPa)
Operating Temperature Range	-40ºF to 140ºF (-40ºC to 60ºC)
Accuracy	± 0.65%
Weight	6.0 lb (2.7 kg)
Inlet and outlet connections	1/2 npt(f)

For use with petroleum-based fluids only.

**Tested with Mobil DTE-25 motor oil. Minimum/maximum flow rates will vary with fluid viscosity.*

Ordering Information

234114 **16 quart Non-Pre-Set Meter**
Includes valve with flexible extension and twist lock nozzle.
Instruction manual 309583.

207738 **60 quart Pre-Set Meter**
Includes valve with rigid extension and automatic nozzle.
Instruction manual 306976.

207739 **60 gallon Pre-Set Meter**
Includes valve with rigid extension and automatic nozzle.
Instruction manual 306976.

207742 **60 liter Pre-Set Meter**
Includes valve with rigid extension and automatic nozzle.
Instruction manual 306976.

Nozzles only:

203655 Twist Lock for Flex Extension
207745 Automatic for Rigid Extension, 1/2 npt(m)
203687 Flexible Extension with Nozzle, 1/2 npt(m)
117676 Flexible Extension with tip, 1/2 npt(m) for 234114

Notes

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Grease Dispense Valves
Fluid Meters and Valves

Accu-Shot Metered Grease Valves

Features and Benefits
- Accurate grease metering within ±3%
- Easy to read LCD display
- Handles pressure up to 5000 psi and flow up to 36 oz/min

233807

Typical Application
- Metered grease dispense
- Heavy duty dealerships
- Fleet service facilities
- Lube trucks
- In-plant
- Mining

Typical Fluids Handled
- Grease up to NLGI #2

Ordering Information
233807 **Accu-Shot Electronic Metered Grease Valve (U.S.)**
Includes extension and hydraulic coupler

233933 **Accu-Shot Electronic Metered Grease Valve (Metric)**
Includes extension and hydraulic coupler

8

Pro Shot Grease Valves

Features and Benefits
- Rugged design for harsh environments
- Pressure-assisted trigger for ease of operation
- Easy top adjustment with locking nut
- Pro-Shot adjustment nut protected by rigid guard

242056

Typical Application
- Non-metered grease dispense
- Heavy duty dealerships
- Automotive dealerships
- Lube trucks
- Service shops
- Fast lube centers
- In-plant
- Mining

Typical Fluids Handled
- Grease up to NLGI #2

Ordering Information
Pro-Shot Grease Dispense Valve

242056 1/4 npt(f) inlet with coupler and extension #200389
242055 1/4 npt(f) inlet without coupler or extension
242058 3/8 npt(f) inlet with coupler and extension #200389
242057 3/8 npt(f) inlet without coupler or extension
224872 Includes 30 in (76.2 cm) whip hose #109148, Z-Swivel #202577 and grease valve #242056.

Manual Guns and Fittings

Ordering Information

202600 1/8 npt(f) Power-Shot Booster Gun
Power-Shot booster gun boosts incoming pressure up to 18,000 psi (1,242 bar). Use with any high-pressure lubricator. Maximum inlet pressure: 5000 psi (345 bar). Includes nozzle (200389). (Hose swivel #202579 must be ordered separately). Instruction Manual: 306271.

202600

233808 EZ-Shot™
Battery powered grease gun provides measured (1 cc) grease dispense at a maximum working pressure of 2900 psi (200 bar). Dispenses 1000 g of grease per charge. Instruction manual 308446.

233808

110218 Lever Grease Gun
Standard Lever-Action Grease Gun: Develops up to 6000 psi (400 bar) working pressure and pumps 1.8 oz. (51 g) per 40 strokes. Can be loaded via cartridge or bulk fill. Optional loader fitting available. Equipped with rigid extension and hydraulic coupler.

110218

110216 Heavy-Duty Lever-Action Grease Gun
High-pressure variable low-volume. Three-way loading: bulk fill, loader fitting or cartridge. Pumps 1.8 oz. per 40 strokes. Normal working pressure of 2000 to 4000 psi (138 to 276 bar), with a maximum of 10,000 psi (690 bar). Includes air bleeder valve. Equipped with rigid extension and hydraulic coupler (MIL-G-3859). Comes with 236171, easy fill valve.

110216

110203 Pistol-Matic Grease Gun
Develops 6000 psi (400 bar) working pressure. Three-way loading: bulk fill, loader fitting or cartridge. Pumps 1 oz. (28.4 g) per 40 strokes. Includes air bleeder valve. Equipped with rigid extension and hydraulic coupler.

110203

203697 1/8 npt(f) Hot-Shot Portable Booster Gun
For portable operation without continuous connection to grease supply. Has 4 oz. (113 g) grease reservoir in handle capable of servicing up to 100 fittings before needing a refill. Has grease fitting for recharging from either manual or air-powered luber. Single-hand operation squeeze handle develops up to 10,000 psi (690 bar). Includes grease extension and nozzle #200389. Instruction Manual: 306460.

203697

110202 Pistol-Matic Grease Gun
Same as #110203 but with 12 in (30.4 cm) flexible rubber hose and hydraulic coupler.

112196 1/4 npt Pistol-Style Air-Operated Grease Gun
Spring-primed, single-shot gun. Three-way loading: bulk fill, loader fitting or 14 oz. (400 g) cartridge. Air input range of 75 to 100 psi (5 to 7 bar); working pressure of 6000 psi (414 bar). Pumps 1.2 oz. (34 g) per 40 pulls at 100 psi (7 bar). Includes standard gun coupler and bleeder valve. (1/4 npt air input connection).

110201 Suction Gun
For evacuating and filling fluids into gear housings, differentials, transmissions and related applications. Comes with red clear plastic 12 in (30.4 cm) hose.

112196

Grease Guns
Manual Guns and Fittings

Accessories for Grease Dispense Guns

Z-Swivels

202579 1/8 npt(m) x 1/4 npt(f) free-ball bearing

202577 1/4 npt(m) x 1/4 npt(f) free-ball bearing use with dispense valve #242055 and #242056

224569 3/8 npt(m) x 3/8 npt(f) free-ball bearing use with dispense valve #242057 and 242058

207948 1/2 npt(m) x 1/2 npt(f) free-ball bearing

202577

Straight Swivels

204082 1/8 npt(m) x 1/8 npt(f) free-ball bearing (8000 psi; 550 bar)

204083 1/4 npt(m) x 1/8 npt(f) free-ball bearing (8000 psi; 550 bar)

204084 1/4 npt(m) x 1/4 npt(f) free-ball bearing (8000 psi; 550 bar)

214925 3/8 npt(f) x 1/4 npsm(f-union) (5000 psi; 345 bar)

214926 3/8 npt(f) x 1/2 npsm(f-union) (5000 psi; 345 bar)

207946 3/8 npt(f) x 1/2 npsm(f-union) (6000 psi; 414 bar)

207947 1/2 npt(m) x 1/2 npt(f) (6000 psi; 414 bar)

204082

203597

360º Swivels

Swivels and locks into full 360º angle. Use for maximum coupler adaptability and reach.

203597 360º Grease Swivel with tapered-nose coupler #200325

203198 360º Grease Swivel (without coupler)

203198

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Grease Guns
Manual Guns and Fittings

Grease Nozzles

Nozzle Length	Part No.	Description
6 in (15.2 cm)	**200389**	Standard Nozzle. Includes straight 1/8 npt(m) extension tube #150622 and tapered nose coupler #200325.
6 in (15.2 cm)	**204072**	Swivel Nozzle. Includes straight 1/8 npt(m) extension tube #150622 and tapered nose coupler #200325. Coupler has 360º swivel adapter #203198 for added convenience.
12 in (30.4 cm)	**204897**	Swivel Nozzle. Includes straight 1/8 npt(m) extension tube #155836 and tapered nose coupler #200325. Coupler has 360º swivel adapter #203198 for added convenience.
12 in (30.4 cm)	**204204***	Inlet Flexible Hose Nozzle. 1/8 npt(m) Includes tapered-nose coupler #200325.
12 in (30.4 cm)	**203504***	Inlet Flexible Hose Nozzle. 1/8 npt(m) Includes tapered-nose coupler #200325 and lock sleeve connector #203497 for quick connection to any grease nozzle having tapered-nose coupler.
12 in (30.4 cm)	**109145**	Hose Nozzle without Coupler
18 in (45.8 cm)	**112255**	Hose Nozzle without Coupler
30 in (76.2 cm)	**109148***	Hose Nozzle without Coupler Has 1/8 npt(m) both ends. Use as alternate for rigid nozzle with tapered-nose coupler #200325.

**Warning: potential injection hazard. Not for use above 5000 psi (345 bar).*

200389

204072

Grease Couplers

Size	Part No.	Description
1/8 npt(f) inlet	**202650**	Standard Straight Nose Grease Coupler
1/8 npt(f) inlet	**200325**	Standard Tapered-Nose Coupler. Standard with most grease dispense nozzles and valves. Hardened jaws grip grease fittings through wide-sealing angle, but release easily.
1/8 npt(f) inlet	**200020**	Standard Button-Head Coupler. Gives fast, positive seal on button-head fittings.
1/8 npt(f) inlet	**200021**	Giant Button-Head Coupler. Gives fast, positive seal on larger button-head fittings.

200325

200020

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Grease Guns
Manual Guns and Fittings

Adapters

Adapters have lock-sleeve connector for quick connection to any grease nozzle with a tapered-nose coupler.

201881 Hydraulic-to-Push Adapter. Used for U-joints and low-pressure service.

205532 Hydraulic-to-Steel Needle Adapter. Used for flush fittings.

205582 Hydraulic-to-Nylon Needle Adapter. Used for removable plugs.

223187 90º Hydraulic-to-Push Adapter (K-Car)
Refer to Instruction Manual 306708.

203497 Lock Sleeve Connector. 1/8 npt(f) outlet. Allows for quick connection to tapered-nose coupler. Inlet is standard grease fitting with sleeve to lock connector in place.

236171 Easy-Fill Valve. For faster loading of Graco hand grease guns with gun loaders. Replaces hydraulic fittings on all grease guns with 1/8 npt(f).
Refer to Instruction Manual 308306.

204929 Grease Loader Valve. For use with lever-operated, high-volume grease pumps. Permits quick bulk-filling of hand-operated grease lever guns equipped with Easy-Fill Valve #236171. Refer to Instruction Manual 308306.

205592 Hydraulic Adapter Assortment Package. Contains needle adapter #205568, plug adapter #205554, push adapter #201881, nylon needle adapter #205582, hydraulic-to-steel needle adapter #205532 and whip hose nozzle connector #203504.

205532

205582

203497

236171

205592

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Grease Guns
Manual Guns and Fittings

Grease Fittings

Part No.	Shank	Description	Pressure Rating
1/8 npt Threaded Grease Fittings (steel; ball-check)			
100054	9/32	1/8 npt straight	10,000 psi (689 bar)
101277	1-9/32	1/8 npt straight	10,000 psi (689 bar)
100970	9/32	1/8 npt 30º angle	10,000 psi (689 bar)
100834	9/32	1/8 npt 45º angle	10,000 psi (689 bar)
100971	9/32	1/8 npt 65º angle	10,000 psi (689 bar)
100833	9/32	1/8 npt 90º angle	10,000 psi (689 bar)
1/4 npt Threaded Grease Fittings (steel; ball-check)			
100848	3/8	1/4 npt 67º angle	10,000 psi (689 bar)
100846	3/16	1/4-28 straight	10,000 psi (689 bar)
100847	13/64	1/4-28 45º angle	10,000 psi (689 bar)
101283	3/16	1/4-28 90º angle	10,000 psi (689 bar)
101281	11/32	1/4-28 straight	10,000 psi (689 bar)
110702	19/64	1/4-28 65º angle	10,000 psi (689 bar)
1/4 npt Thread-Forming Grease Fittings (steel; ball-check)			
110703	13/64	1/4-28 straight	10,000 psi (689 bar)
110704	13/64	1/4-28 45º angle	10,000 psi (689 bar)
110705	13/64	1/4-28 90º angle	10,000 psi (689 bar)
3/16 npt Thread-Forming Grease Fittings (steel; ball-check)			
110706	3/32	3/16 npt straight	10,000 psi (689 bar)
110709	7/32	3/16 npt 65º angle	10,000 psi (689 bar)
Drive-Type Grease Fittings (steel; no check)			
110713	1/4	3/16 npt straight	
101312	1/4	3/16 npt straight	
110710	1/4	5/16 npt straight	
101287	17/64	1/4 npt straight	
Standard Button-Head Grease Fitting (steel)			
100837	7/16	1/4 npt straight	
101297	33/64	3/4 npt straight	
110711	35/64	1/2 npt straight	
Giant Button-Head Grease Fitting (steel)			
110712	9/16	3/8 npt straight	

100970

100834

100833

110704

101287

101297

110712

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Grease Guns
Manual Guns and Fittings

Grease Accessory Packages

202654 **Convenient Storage Box**

Contains the following threaded fittings in the quantity listed:

Shank	Description	Grease Fitting No.	Quantity
9/32	1/8 npt straight	100054	30
9/32	1/8 npt 30º angle	100970	10
9/32	1/8 npt 90º angle	100833	10
3/16	1/4-28 straight	100846	20
13/64	1/4-28 45º angle	100847	10

202654

Easy-Outs

For installation and removal of grease fittings.

101604 1/8 npt

101604

101605 1/4-28 unf

101605

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Matrix™

Total Fluid Management System™

For Sale to Authorized Distribution Only

Features and Benefits

- Simple tracking so you're never short on oil
- Easy to use system software and components
- Multi-level security to protect your system and your assets
- Customizable to fit your business needs
- Wireless transmission and reception of meter and tank level information makes it simple to track your entire facilities activities
- Precise measurement and control of key fluids means less waste

Typical Application

- Auto dealerships
- Heavy duty fleet service
- Off road maintenance shops
- Industrial in-plant lubrication

Typical Fluids Handled

- Petroleum and synthetic based oil
- Anti-freeze

Matrix Meter
246008

Tank Level Monitor
119274

Transceiver and
Software
249020

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Matrix
Total Fluid Management System

Software System
Ordering Information
Packaged with the Matrix Transceiver. May not be ordered separately.

Operating Requirements
During set up, the Matrix Software program and other files are decompressed and copied to the hard disk. Note: The system administrator function of the program must be set up before using the software or other system components.

This software is not compatible with Apple® Computers, and is not available for the Apple® Operating system.

Minimum computer requirements to run the Matrix software:

- Graco recommends using a dedicated PC with a Pentium III, 500 MHz processor or better. If the system needs to run in a networked configuration, contact your Information Systems (IS) professional before loading the software.
- Microsoft Internet Explorer 5.5 or better
- Microsoft Windows XP – Professional or Home Edition
- At least 128 megabytes (MB) of random-access memory (RAM)
- At least 500 megabytes (MB) to 1 gigabyte (GB) of hard disk space
- One serial port available
- CD-RW or DVD/RW Drive

Transceiver and System Software
Ordering Information
249020 Transceiver and Matrix Full Line Software
117256 Transceiver only
119425 Uninterruptible power supply (UPS)

Technical Specifications
Weight ..... 1.0 lbs. (454 grams)
RF Communication ..... 902-928 MHz frequency hopping, spread-spectrum
Unobstructed RF Communication Range ..... 300 – 500ft (91.0 – 152.0 m)
Obstructed RF Communication Range ..... 250 – 300ft (76.2 – 91.0 m)
RF Operating Temperature Range ..... -40°F – 185°F (-40°C – 85°C)
Power Supply ..... 120 VAC to 12VDC plug in transformer
Approvals ..... FCC, Industry Canada (IC)
Warranty ..... Two years
Instruction Manual 309498

Matrix
Total Fluid Management System

Matrix Meter
Ordering Information

246008 Matrix Meter
One battery included. Extension kit is sold separately.
117310 Meter battery
246005 Rigid Extension
246007 Flexible Extension
246006 Gear Lube Extension
248319 Rigid anti-freeze extension
248320 Flexible anti-freeze extension,
246003 Oil quick close nozzle only
248318 Anti-freeze quick close nozzle only
15D587 Swivel cover

Color Coded Impact Guards
15D618 Black meter impact guard
15F001 Red meter impact guard
15F002 Blue meter impact guard
15F003 Green meter impact guard
15F004 Yellow meter impact guard

Accessories and Kits
15B750 Console bracket
246438 Bezel repair kit
246439 Trigger repair kit
246675 Electronic repair kit

Technical Specifications

Maximum Fluid Working Pressure . . . . . 1500 psi (103 bar, 10.3 MPa)
Operating Fluid Pressure Range* . . . . . 100 – 1500 psi (7 – 103 bar, 0.7 – 10.3 MPa)
Flow Range . . . . . 0.26 – 5.0 gpm (1.0 – 18.9 lpm)
Weight (with battery and rigid nozzle extension) . . . . . 6.07 lbs (2.75 kg)
Units of Measurement . . . . . Programmable in pints, quarts, gallons, or liters
Maximum Recorded Dispense Volume . . . . . 999.99 units
Maximum Preset Volume . . . . . 99.9 units
Inlet Size . . . . . 1/2 npt(f)
Outlet Size . . . . . 3/8 npt(f)
Operating Temperature Range . . . . . 32°F – 120°F (0°C – 49°C)
Storage Temperature Range . . . . . -30°F – 120°F (-34°C – 49°C)
Battery (six month warranty) . . . . . 9.6 VDC rechargeable NiMH
Battery Storage Temperature . . . . . 50°F – 86°F (10°C – 30°C)
Wetted Parts . . . . . Zinc, stainless steel, carbon steel, polyurethane, nitrile rubber
Fluid Compatibility . . . . . Petroleum and synthetic based oils and anti-freeze mixtures (not compatible with fuel and windshield washer fluid)
Accuracy** . . . . . ±0.5 %
(may require calibration, out-of-box accuracy ±1.25 %)
Repeatability** . . . . . ±0.15 %
RF Communication . . . . . 902 – 928 MHz frequency hopping, spread-spectrum
Unobstructed RF Communication Range . . . . . 300–500 ft (91.0 – 152.0 m)
(based on typical automotive dealership application)
Obstructed RF Communication Range . . . . . 250–300 ft (76.2 – 91.0 m)
(based on typical automotive dealership application)
Approvals . . . . . FCC, Industry Canada (IC)
Warranty . . . . . Two years
Instruction Manual 309497

** Specifications based on using 30w oil. Lighter viscosity fluids (ie, anti-freeze) will require a slightly higher inlet fluid pressure to open the Matrix valve*
*** At 2.5 gpm (9.5 lpm), at 70°F (21°C) with 10W oil, and 1 gallon (3.76 liters) dispensed.*

Matrix
Total Fluid Management System

Tank Level Monitor
Ordering Information

119274 Tank Level Monitor

Technical Specifications

Ultrasonic Tank Depth Measurement Range . . . . . 0 – 30 ft. (0-9 m)
(Not recommended for use with pressurized tanks)
Fluid Level Measurement Accuracy* . . . . . ± 0.5%
Weight . . . . . 2.34lb (1.06 kg)
Operating Temperature Range . . . . . -22°F - 122°F (-30°C - 50°F)
RF Operating Temperature Range . . . . . -40°F - 185°F (-40°C - 85°F)
Storage Temperature Range . . . . . -40°F - 185°F (-40°C - 85°F)
Batteries . . . . . (2) 9 VDC Alkaline only
RF Communication . . . . . 902-928 MHz frequency hopping, spread-spectrum
Unobstructed RF Communication Range . . . . . 300-500 ft (91.0 – 152.0 m)
based on building construction and RF environment
Obstructed RF Communication Range . . . . . 250-300 ft (76.2 – 91.0 m)
based on building construction and RF environment
Totally Unobstructed RF Communication Range . . . . . 0.25 mile/1,320 ft (.4 km/402.3 m)
based on TLM and Transceiver mounting and RF environment
Intrinsic Safety . . . . . EXI for used in Class I, Division 1, Group D, Hazardous Locations when used with (2) 9-volt alkaline batteries.
Ambient temperature range -22ºF - 122ºF (-30ºC - 50ºC).
Temperature Code T3.

Vertical Tanks
- Maximum volume . . . . . 999,999 gallons or liters
- Maximum height . . . . . 30 ft (360 in.)

Cylindrical Tanks
- Maximum volume . . . . . 999,999 gallons or liters
- Maximum diameter . . . . . 30 ft (360 in.)
- Maximum length . . . . . Unlimited

Approvals . . . . . FCC, Industry Canada (IC), UL, cUL
Warranty . . . . . Two years
Instruction Manual 309500

Note: Do NOT use the Matrix Tank Level Monitor with with gasoline, diesel fuel, or other flammable liquids, and materials with an auto ignition flash point below 419ºF (215ºC).

** The difference in air temperature between the inside and outside of the tank may affect the accuracy of fluid levels.*

Matrix
Total Fluid Management System

Battery Charger and Batteries
Ordering Information

117427 Single-Bay Charger
117429 4-Bay Charger
117435 Extension Unit (used to convert a 4-bay charger to either a 5-bay or 6-bay charger)
117310 Meter battery

Technical Specifications

Charging Time . . . . . 1-2 hours
Power Source
  Four-bay charger . . . . . 120 VAC
  Single-bay charger . . . . . 120 VAC to 24 VDC plug in transformer
Operating Temperature Range . . . . . 32°F - 122°F (0°C - 50°C)
Storage Temperature Range . . . . . -40°F - 185°F (-40°C - 85°C)
Humidity Range . . . . . 0 – 95% rH non-condensing
Weight
  Four-bay charger . . . . . 6.63 lbs (4.38 kg)
  Single-bay charger . . . . . 2.12 lbs. (0.96 kg)
Warranty . . . . . Two years
Battery Charger Instruction Manual 309502
Battery Charger Extension Manual 309499
  (single bay extension for Four-Bay charger)

CleanLine Filter Assemblies
Ordering Information

248421 900 psi tank mount CleanLine filter assembly
248418 900 psi wall mount CleanLine filter assembly
248419 1800 psi tank mount CleanLine filter assembly
248417 1800 psi wall mount CleanLine filter assembly

Replacement Filters
15D702 900 psi CleanLine screw-on type filter
119278 1800 psi CleanLine filter element

Anti-Freeze Pump Packages
Ordering Information

248321 Monark 5:1 wall mount anti-freeze pump package
248322 Monark 5:1 Tank Mount anti-freeze pump package
248323 President 3:1 Wall Mount anti-freeze pump package

RS232 and/or RS422 Transceiver to PC Connection
Ordering Information

119435 RS232/422 converter
249019 RS422 connector and ferrule kit (10 connector/100 ferrules)
119645 RS422 connector crimping tool
119572 1000 ft roll of RS422 cable
118346 100 ft RS232 cable
117498 10 ft RS232 cable

Matrix

Tank Level Monitoring System

For Sale to Authorized Distribution Only

Features and Benefits

- No wiring costs
- Local access to your data with no additional fees
- Simple tracking so you're never short on oil
- Easy to use system software and components
- Customizable to fit your business needs
- Wireless transmission and reception of tank level information makes it simple to track your entire facilities activities
- Precise measurement and control of key fluids means less waste

Tank Level Monitor
119274

Transceiver and Software
249021

Typical Application

- Oil tank farms
- Off-road fleets
- Car and truck dealerships
- In-plant lubrication
- Fast lubes

Typical Fluids Handled

- Petroleum and synthetic based oil
- Anti-freeze
- Used oil
- Used anti-freeze

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Matrix
Tank Level Monitoring System

Software System
Ordering Information
Packaged with the Matrix Transceiver. May not be ordered separately.

Operating Requirements
During set up, the Matrix Software program and other files are decompressed and copied to the hard disk. Note: The system administrator function of the program must be set up before using the software or other system components.

This software is not compatible with Apple® Computers, and is not available for the Apple® Operating system.

Minimum computer requirements to run the Matrix software:

- Graco recommends using a dedicated PC with a Pentium III, 500 MHz processor or better. If the system needs to run in a networked configuration, contact your Information Systems (IS) professional before loading the software.
- Microsoft Internet Explorer 5.5 or better
- Microsoft Windows XP – Professional or Home Edition
- At least 128 megabytes (MB) of random-access memory (RAM)
- At least 500 megabytes (MB) to 1 gigabyte (GB) of hard disk space
- One serial port available
- CD-RW or DVD/RW Drive

Transceiver and System Software
Ordering Information
249021 Transceiver and TLM Software
117256 Transceiver only
119425 Uninterruptible power supply (UPS)

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Technical Specifications

Weight	1.0 lbs. (454 grams)
RF Communication	902-928 MHz frequency hopping, spread-spectrum
Unobstructed RF Communication Range	300 – 500ft (91.0 – 152.0 m)
Obstructed RF Communication Range	250 – 300ft (76.2 – 91.0 m)
RF Operating Temperature Range	-40°F – 185°F (-40°C – 85°C)
Power Supply	120 VAC to 12VDC plug in transformer
Approvals	FCC, Industry Canada (IC)
Warranty	Two years
Instruction Manual	309498

Matrix
Tank Level Monitoring System

Tank Level Monitor
Ordering Information

119274 Tank Level Monitor

Technical Specifications

Unobstructed RF Communication Range . . . . . 300 – 500 ft (91.0 – 152.0 m)
Ultrasonic Tank Depth Measurement Range . . . . . 0 – 30 ft. (0-9 m)
Not recommended for use with pressurized tanks.
Fluid Level Measurement Accuracy* . . . . . ± 0.5%
Weight . . . . . 2.34lb (1.06 kg)
Operating Temperature Range . . . . . -22°F - 122°F (-30°C - 50°F)
RF Operating Temperature Range . . . . . -40°F - 185°F (-40°C - 85°F)
Storage Temperature Range . . . . . -40°F - 185°F (-40°C - 85°F)
Batteries . . . . . (2) 9 VDC Alkaline only
RF Communication . . . . . 902-928 MHz frequency hopping, spread-spectrum
Unobstructed RF Communication Range . . . . . 300-500 ft (91.0 – 152.0 m)
based on building construction and RF environment
Obstructed RF Communication Range . . . . . 250-300 ft (76.2 – 91.0 m)
based on building construction and RF environment
Totally Unobstructed RF Communication Range . . . . . 0.25 mile/1,320 ft (.4 km/402.3 m)
based on TLM and Transceiver mounting and RF environment
Intrinsic Safety . . . . . EXI for used in Class I, Division 1, Group D, Hazardous Locations when used with (2) 9-volt alkaline batteries.
Ambient temperature range -22ºF - 122ºF (-30ºC - 50ºC).
Temperature Code T3.

Vertical Tanks
Maximum volume . . . . . 999,999 gallons or liters
Maximum height . . . . . 30 ft (360 in.)
Cylindrical Tanks
Maximum volume . . . . . 999,999 gallons or liters
Maximum diameter . . . . . 30 ft (360 in.)
Maximum length . . . . . Unlimited
Approvals . . . . . FCC, Industry Canada (IC), UL, cUL
Warranty . . . . . Two years
Instruction Manual 309500

Note: Do NOT use the Matrix Tank Level Monitor with with gasoline, diesel fuel, or other flammable liquids, and materials with an auto ignition flash point below 419ºF (215ºC).

** The difference in air temperature between the inside and outside of the tank may affect the accuracy of fluid levels.*

RS232 and/or RS422 Transceiver to PC Connection
Ordering Information

119435 RS232/422 converter
249019 RS422 connector and ferrule kit (10 connector/100 ferrules)
119645 RS422 connector crimping tool
119572 1000 ft roll of RS422 cable
118346 100 ft RS232 cable
117498 10 ft RS232 cable

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Horizon™ System
Electronic Fluid Management

Features and Benefits
- Allows multiple technicians to dispense simultaneously
- Easily configured and expandable for any facility
- Increases technicians productivity
- Password-protected to prevent unauthorized dispensing
- Tracks inventory levels and alerts operators to low-inventory conditions to minimize out-of-stock situations

Typical Application
- Bulk-dispensing to multiple service bays
- Automotive dealerships
- Heavy duty dealerships
- Fleet service facilities

Typical Fluids Handled
- Petroleum and synthetic based oils
- Anti-freeze

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Horizon System
Electronic Fluid Management

Technical Specifications

System Specifications

Control Modules on a System (1 Master only, plus 39 Slaves) ..... 40 maximum
Keypads on a System (1 keypad per Control Module) ..... 40 maximum
Solenoids on a System (40 Control Modules, 6 ports each) ..... 240 maximum
Meters on a System (40 Control Modules, 6 ports each) ..... 240 maximum
Fluids on a System ..... 10 maximum
Dispense Areas (reel banks) ..... 99 maximum
Operator Names / PIN Numbers ..... 100 maximum
Dispense Records Stored ..... 668 maximum
Simultaneous Dispenses (same and/or different fluids) ..... 12 maximum
Jobs Waiting in Queue ..... 12 maximum
Printer per System OR Attached Computer per System ..... 1 maximum
(either must be connected to Master Control Module)
Accuracy of System ..... ±0.6%

Control Module Ports

Solenoid Ports (air or fluid) per Control Module 6
Pulse Meter Ports per Control Module 6
Port for Keypad per Control Module 1
Port for Printer or Computer per Master Control Module 1

Voltage Input

90-120 Volts AC, 50/60 Hz, single phase, 2 amps maximum draw
208-240 Volts AC, 50/60 Hz, single phase, 1 amp maximum draw

Operating Temperature Range ..... 40 to 140ºF (4 to 60ºC) ambient

Pre-set or Free-flow Options

Maximum Preset or Free-Flow Dispense ..... 999.9 units
Minimum Preset Dispense ..... 0.5 units

Units of Measure

Dispense: liters, quarts, gallons or pints (configurable for each fluid)
Inventory: liters or gallons (dependent upon dispense units chosen)

Maximum Cable Lengths

From Keypad to Control Module ..... 50 ft (15.3 m)
From Solenoid to Control Module ..... 50 ft (15.3 m)
From Pulse Meter to Control Module ..... 50 ft (15.3 m)
From Printer/Computer to Master Control Module ..... 50 ft (15.3 m)
From one end of the Control Module Network to the other end (daisy-chained) ..... 2000 ft (610 m)

Reference Data

Instruction Manual 308607

Horizon System
Electronic Fluid Management

Components and Accessories

Control Module

238624 Master Control Module (one per system)
238625 Slave Control Module (up to 39 per system)

The control module is the operating intelligence of the Horizon System through which all commands pass. There are two versions: the Master and the Slave. Both perform similar functions (driving air and fluid solenoids, and counting pulses from meters) and have on-board memory that contains a map of available system resources, and a power supply that supports both 120 and 240 Volt AC operation. There must be only one Master Control Module, and up to 39 Slave Control Modules per system.

238624

Keypads: Basic, Enhanced and Administrative

Keypads are used to:
- Request dispense jobs
- Configure the system
- Monitor system activity

113551 Basic Keypad
Has a set of large numeric keys and the additional keys needed to navigate through the Horizon's menus (up and down arrows, HOME, BACK, and the ENTER).

113553 Administrative Keypad
This keypad is needed to set up and make changes to the system parameters. The administrative keypad has both alpha and numeric keys for system set-up and programming.

113553 *113551*

191368 Keypad Wall-Mounting Bracket

Air Solenoids

215407 For Pumps Requiring Normal Air Flow (Mini Fire-Ball 225, 3:1 and Fire-Ball 300, 5:1)

512926 For Pumps Requiring Higher Air Flow (Fire-Ball 425, 6:1 and 3:1)

Air solenoids open and close the air supply to the fluid pump air motor.
Each solenoid can be up to 50 ft (15.3 m) from a Control Module.
Up to 6 solenoids (either air or fluid) can be connected to each Control Module.

215407

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Horizon System
Electronic Fluid Management

Fluid Solenoids

215487 Low-flow: supports 3 gpm (11.4 lpm)
512927 Higher-flow: supports up to 6 gpm (22.7 lpm)
514150 Anti-Freeze Solenoid

215487

Fluid solenoids start and stop the fluid dispense cycles. These must be placed at each dispense point for each fluid being dispensed. Each fluid solenoid can be up to 50 ft (15.3 m) from a control module. Up to 6 solenoids (either air or fluid) can be connected to each control module. The low-flow model is available in a kit with a ready light which alerts the operator when the job is ready to dispense.

218588 Low-flow Solenoid with Ready Light Kit
238996 Ready Light Kit (only; less the solenoid)

Pulse Meters

238618 For Oils, Gear Lube, Automatic Transmission Fluid
215474 For Anti-Freeze

238618

Pulse meters measure fluid flow to dispense points and send a train of pulses back to the Control Modules. The Control Modules count these pulses to determine how much fluid has been dispensed. If there are multiple meters for a single fluid, check valves #111620 should be placed in series with each meter to prevent “cross talk” and oscillations. Pulse Meters can be used for either U.S. or metric units.

102527 Thermal Relief Valve, 900 psi (62 bar). *See additional relief kits below*

111620 Check Valve, 1/2 in

Thermal Relief Kits
235998 600 psi (41 bar)
237893 900 psi (62 bar)
240429 1600 psi (110 bar)

System Printer

113774 Printer
514037 Printer Paper, 1 roll

113774

The system printer prints out individual job tickets after each dispense transaction is complete. These dispense reports can be torn off immediately or saved for later analysis.

System Cables

A number of different cables are available for the Horizon system. When a definite length is required, the cable will come with connectors already attached. Other cables will come in bulk form to allow the installer to use whatever length is needed.

Keypad or Printer
191393 Cable with Connectors. Length: 25 ft (7.6 m)
191394 Cable with Connectors. Length: 50 ft (15.3 m)

Control Module Network
113559 Bulk Cable. Length: 500 ft (152.5 m)
113560 Bulk Cable. Length: 1000 ft (305 m)

Pulse Meters
113555 Length: 500 ft (152.5 m)
113556 Length: 1000 ft (305 m)

Solenoids
113557 Length: 500 ft (152.5 m)
113558 Length: 1000 ft (305 m)

Computer (includes connectors)
192873 Computer I/O 25 ft (7.6 m)
192874 Computer I/O 50 ft (15.3 m)

Fluid Commander™

Electronic Fluid Management

Features and Benefits

- Provides increased accuracy over mechanical counters
- PIN code prevents unauthorized dispensing
- Dispense totals tracked by location
- Easy to read display
- Accurate controlled dispense with parts room authorization

Typical Application

- Parts room authorized dispensing for inventory control
- Automotive dealerships
- Heavy duty dealerships
- Fleet service facilities

Typical Fluids Handled

- Petroleum and synthetic based oils
- Anti-freeze

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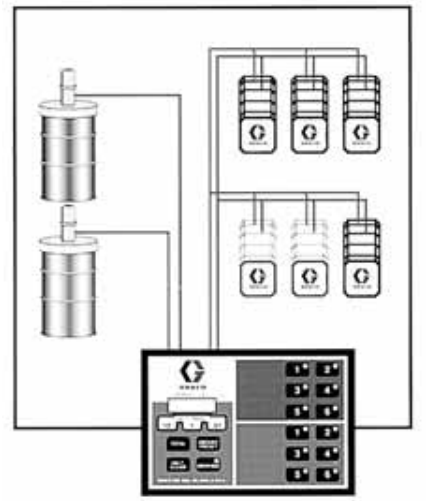
Technical Specifications

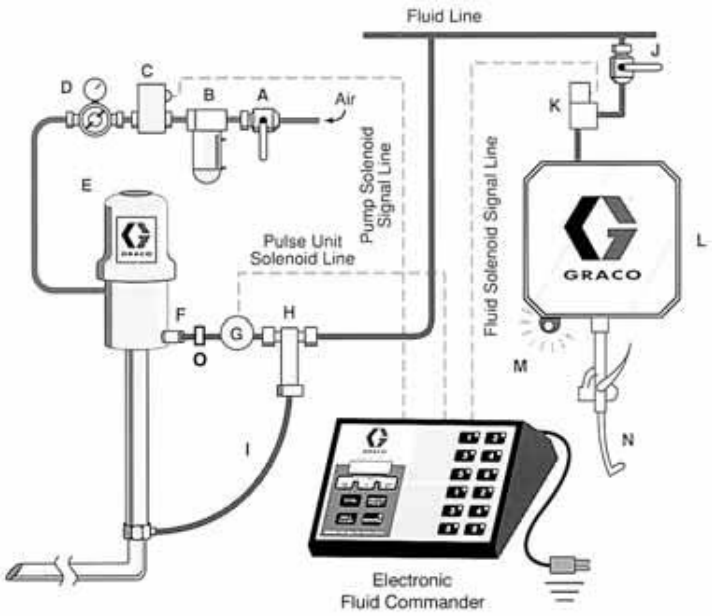
Maximum Number of Fluids	1 or 2
Dispense Stations/Bays	6 or 12
Air Solenoids Required	1 (per pump)
Fluid Solenoids Required	1 (per fluid dispense station)
Electrical Requirements	120 V, 60 Hz, .25 amps
Weight	4 lb, 5 oz. (8.0 kg)
Wiring Requirements	90V; 2-wire
Distance/Gauge	200 ft (61 m) = 18 gauge
	201 to 500 ft (61 m to 152 m) = 16 gauge
	501 ft (152 m) or more = 14 gauge
Instruction Manual	308238

Easy to Use

1. Service technician enters the service bay number, type of product, and amount to be dispensed, then activates the dispense button.
2. A “ready” light (located on the hose reel or dispense bar of the target service bay) signals when dispensing can begin.
3. As fluid is dispensed, the Fluid Commander tallies the amount dispensed and shuts-off when the pre-set amount is reached. No further dispensing takes place until new dispensing data is entered.

Fluid Commander
Electronic Fluid Management





Fluid Commander System (U.S. Measures)

System for 2 products and 6 stations **232076**
Includes:
- One 2-product/6-station Fluid Commander 235532
- Oil meter 236763
- Fluid solenoid valve 215487
- Air solenoid valve 215407
- Check valve 111620

System for 1 product and 12 stations: **241905**
Includes:
- One 1-product/12-station Fluid Commander 235531
- Oil meter 236763
- Fluid solenoid valve 215487
- Air solenoid valve 215407
- Check valve 111620

Fluid Commander System (Metric Measure)

System for 2 products and 6 stations **240448**
Includes:
- One 2-product/6-station Fluid Commander 232077
- Oil meter 236764
- Fluid solenoid valve 215487
- Air solenoid valve 215407
- Check valve 111620
- Instruction manual 308238

Typical Layout of System with Fluid Commander In Place

A. Air shut-off valve, bleed type (110224)
B. Air filter (106148)
C. Air solenoid valve (215407)
D. Air regulator and gauge (109075)
E. Pump
F. 40-mesh fluid strainer (223179)
G. Pulse meter (236763; 236764)
H. Thermal relief kit*
I. Fluid drain hose
J. Fluid shut-off valve (108458)
K. Fluid solenoid valve** (215487)
L. Hose reel
M. Ready-to-dispense indicator light** (238996)
N. Dispense valve
O. 1/2 npt check valve (111620)†

*Kit required to protect system from rupture due to thermal expansion of fluid lines. See instruction manual 308403.
**#218588 includes #238996 and #215487.
Note: For tank packages, pressure reliefs from instruction manual 308403 must be installed on outlet with pressure going either back to vent into the tank or to a container installed under the exit or relief valve.
† Required to ensure meter accuracy.

Fluid Commander
Electronic Fluid Management

Accessories

236763 Pulse Meter (quarts)

236764 Pulse Meter (liters)

215474 Pulse Meter (quarts)

215745 Pulse Meter (liters)

244404 Anti-Freeze Pulse Meter (quarts) 215474 with converter box 244342

244342 Meter Pulse Converter
Used when upgrading old-style modular fluid commander to electronic. This allows use of 215474/215475 with the EFC. Instruction manual 309276.

215407

215407 Air Solenoid Valve 150 psi (10 bar)
(1/2 npsm(f) conduit ports for wiring; 1/4 npt(f) air ports) Operates on 24V DC and 110 VAC. Automatically shuts-off air inlet to pump when pre-set dispensed amount is reached. Not for use with anti-freeze. Materials of construction: brass, SST, Buna.

105474 Air Solenoid Valve 150 psi (10 bar) (bare)
Same as #215407 but without wiring connectors or adapters.
1/2 npsm(f) conduit ports for wiring; 1/4 npt(f) air ports.
150 psi (10.3 bar) maximum working pressure.

215487

514150 Fluid Solenoid Valve (anti-freeze) 1/2 npt(f)
Same as #215487, but for use with anti-freeze.

215487 Fluid Solenoid Valve 1/2 npt(f) 3000 psi (207 bar)
Operates on 24V DC. Automatically shuts-off fluid when pre-set dispensed amount is reached. Includes tube, valve, pin connector, wire plug connector and adapter.

110025 Fluid Solenoid Valve 1/2 npt(f) 3000 psi (bare)
Same as #215487 above, but without wiring connectors or adapters.

218588 Ready-Light Kit
Signals operator when dispensing can begin. Includes 'ready to dispense' indicator light #239019, strainer #240417, fluid solenoid valve #215487 and hardware. Instruction manual 307696.

kit 218588 shown

238996 Ready-Light with Junction Box (no solenoid or strainer)

239019 Ready-to-Dispense Indicator Light Only

113859 Lamp for Indicator Only

223179 Fluid Filter Kit (for bare electronic meter)

186472 Wall-Mounting Bracket

108458 Fluid Shut-Off Valve

237893 Thermal Relief Kit for 900 psi (62 bar)
Relieves excess heat-induced pressure from dispense system.
Male and female ends allow for simple installation. Instruction manual 308403.

Connecting Cables
For connecting solenoids and consoles. 90-volt, 2-wire, 18-gauge.
215481 100 ft (30.5 m) Pre-connected at both ends
215480 10 ft (3.1 m) Pre-connected at both ends

215481

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Used-Oil Handling Packages

Oil King™, Coolant King™, and Oil Ace™

Oil King and Coolant King

Features and Benefits

- Large 25 gallon capacity with sight gage
- Convenient tool trays and filter areas
- Large offset collection pan with screen
- Oversized tires to get over hose and rough floors
- Color specific receiver for easy identification

248632

238866

Typical Application

- Used fluid receiver
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops

Typical Fluids Handled

- Used oil – Oil King
- Used antifreeze – Coolant King

Ordering Information

238866 **Oil King 25 gal (95 l) Used-Oil Receiver**
Polyethylene tank with used-filter tray, tool holders and sight gauge. Includes all hardware for topside evacuation or bottom drain*. Instruction manual 308667.
** Must use 222090 or 224873 for topside evacuation. Must ship via truck.*

248632 **Coolant King Used Anti-Freeze Receiver**
Polyethylene tank with used-filter tray, tool holders and sight gauge. Includes all hardware for topside evacuation or bottom drain.

Oil Ace

10

Features and Benefits

- Easy to drain using shop air pressure
- Large 24 gallon capacity
- Large offset collection pan with screen

115599

Typical Application

- Pressurized used oil receiver
- Automotive dealerships
- Heavy duty dealerships
- Service shops
- Fast lube centers
- Fleet service facilities

Typical Fluids Handled

- Used Oil

Ordering Information

115599 **Oil Ace 24 gal (90 l) Steel-tank Pressurized Oil Drain**
Use standard shop air chuck to empty the tank. Designed with tank fluid level gauge, evacuation hose plug to prevent dripping, and large bowl with 31 in (78.7 cm) total reach for greater convenience and ease-of-use. Approximately 3 gpm (11.3 lpm) evacuation from drain to waste oil tank. Instruction manual 309042.

Used-Oil Handling Package
Oil Drains and Accessories

Ordering Information

239301 **16 gal (60 l) Used-Oil Receiver with drum.**
Use with evacuation kit #240832. Instruction manual 306449.

239302 **16 gal (60 l) Used-Oil Receiver without drum**
Instruction manual 306449.

243650 Funnel Kit for 238866, 239301, 239302 and 248632. Includes tray and pipe.

225272 **Pedestal Receiver**
Telescoping funnel includes splash cover and adjusts/locks from 47 to 68 in. (119 to 172 cm) high. Funnel has internal automatic check-valve to hold used oil until it is drained (see accessories below): 3 gal (11.3 l) bowl capacity. Instruction manual 306077.

154616 **Wall-Mounted Funnel Drain**
Use with Pedestal Receiver #225272 to open automatic check-valve and drain used oil through wall to waste tank. Drain has 1-1/4 npt(f) outlet.

156789 **Drum-Mounted Funnel Drain**
Use with Pedestal Receiver (#225272) to open automatic check-valve and drain used oil into standard drum. Funnel drain has 2 npt bung fitting for use with 55 gal (210 l) or 16 gal (60 l) drums, or 275 gal (1,100 l) tanks.

208009 **ATF Drain Funnel**
Use with Pedestal Receiver #225272 to extend funnel reach. Use for draining transmissions. (Not equipped with drain plug.) 16" x 24 1/2"

218969 **Rolling Used-Oil Receiver**
Specially designed for car and truck fast-lube facilities where speed and mobility are important. Adjustable steel rollers fit track widths of 39 in (99 cm) to 46 inches (117 cm), with a minimum running width of 2-1/2 in (63.5 mm). Front and rear drain fittings allow use of two drains on a single track, permitting two receivers to be drained simultaneously. Instruction manual 307727. Unit includes: 30 gal (114 l) steel tank, 1-1/2 npt drain valve #108204, 1-1/2 npt quick coupler #108202 and 1-1/2 npt coupler cap. Dimensions: 24 in (61 cm) wide; 33 in (84 cm) long; 11 in (28 cm) deep; 3 in (7.6 cm) diameter wheels. 1-1/2" drain hose — see manual provided.

235346 **Narrow Rolling Used-Oil Receiver**
Same as #218969 above, except track width range is from 34.2 in (87 cm) to 42.2 in (108 cm). 27 gal (102 l) capacity. Instruction manual 307727.
See accessories on page 101.

244055 **Big Hauler™ Truck Drain**
Specially-designed for truck maintenance facilities, the Big Hauler Truck Drain boasts a large capacity and easy maneuverability. Dimensions: 42 in (106.7 cm) long; 30 in (76.2 cm) wide; 9 in (22.9 cm) deep. Capacity: 26 gallons (98 l). Instruction manual 309194. Gravity drain valve at bottom of unit allows for easy drain access. 3/4" npt outlet can also be used with 224873 or 222090 for diaphragm evacuation. 240832 can be ordered separately for existing diaphragm pump evacuation systems. Instruction manual 308719.

239301

225272

208009

218969

244055

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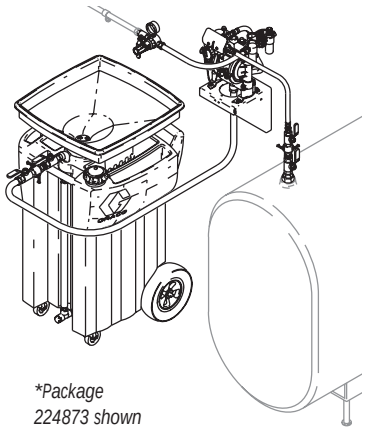
Used-Oil Handling Packages
Evacuation Systems

Packages for Used-Oil Evacuation with Air-Operated Diaphragm Pumps

Package #222090 includes:
236265 1040 (1 in) diaphragm pump
189233 Wall bracket
240684 Air installation kits
240685 Fluid installation kits
240832 Drum style adapter kits

Wall-mounted Package #224873 includes:
241906 716 (3/4 in) diaphragm pump
224835 Wall bracket
240684 Air installation kits
240685 Fluid installation kits
240832 Drum style adapter kits
See instruction manual 308719 for more information.
Used-oil receivers are not included and must be ordered separately.



**Package 224873 shown (Package does not include 238866 receiver or tank)*

Stationary Gear-Oil Evacuation Systems with 716 or 1040 Diaphragm Pump
System evacuates lube from differential case using suction generated by a diaphragm pump. Nylon tubes ranging in size from 3/16 in OD to 1/2 in OD are included to fit through sight plug to completely drain the case. Evacuated gear lube is then pumped to waste tank. Piping and waste tank not included. Systems are fully-groundable and bondable for safe transfer of used oil.

224955 Includes: 716 diaphragm pump #241906, air control kit #110149, mounting kit #224759, swivel union #157785, hose coupler #111474, suction hose/wand** #221146 and control valve** #220969.

222148 Includes: UL-listed 1040 diaphragm pump #236265, air control kit #221147, hose and fitting kit #222149, evacuation control valve #220969, suction hose/wand** #221146 and wall bracket #189233.

***Order additional suction hose/wand #221146 and additional control valve #220969 for each additional suction point.*

Note: Order grounding clamp #222011 or use locally-supplied grounding wires and clamps in accordance with applicable codes.

Port-Evac Pump
Allows fast, clean withdrawal of gear lube, ATF, anti-freeze, and related fluids.

223695 Port-Evac
Includes: 716 diaphragm pump #241906, mounting kit with 10 ft (3 m) suction hose #223697 which attaches to wands of four different diameters (suction wand kit #223696): 1/2 in (12.7 mm); 3/8 in (9.5 mm); 1/4 in (6.4 mm), and 3/16 in (4.7 mm). Instruction manual 308035.

223695

Suction Wand Kits
223696 15 in (38.1 cm)
224761 32 in (81.2 cm)
224762 48 in (121.9 cm)

Used-Oil Handling Packages
Used-Oil Handling Accessories

Used-Oil Handling Accessories

218970 Tandem Drain Kit
Tandem drain kit connects two rolling receivers for flow-through draining operation. Kit includes connector hose, shut-off valve, pipe nipple, and quick-connect nipple. Instruction manual 307727.

108201

108491 Drain Hose Kit
Allows rolling used-oil receiver to be drained directly into the used-oil line. Kit is 24 in (0.6 m) in length with camlock coupler on one end.

221007 Swing-Arm Drain Kit
Used for servicing single rolling used-oil receiver #218969. When used with tandem drain kit #218970 it can service two receivers on a single track. Kit includes swivel elbow #108867, connector hose #111931, dust cap #108203 and male adapter #108202.

218970

116229 Oil Tank Monitor
Shuts off air to the pump when tank is full. Mounted at either end of fast lube service pit, swing-arm drain stores against pit wall and is rotated into position for use.

116229

223888 Accessories for Port-Evac Pump (223965)
6 ft (1.8 m) suction hose for ATF and anti-freeze. Includes filter screen.

Accessories

222178 U-Tube for Used-Oil Drain Cart Evacuation System (222148)
Size: 1/2 npt(mbe).

222011 Grounding Clamp for all Used-Oil Handling Systems
Includes 25 ft (7.6 m) grounding wire.

Fas-Vac Evacuation Systems

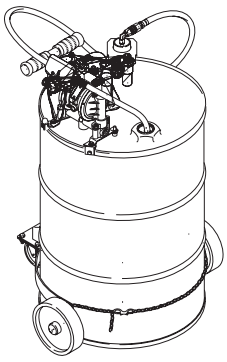
224667* Fas-Vac Evacuation System (without drum)
Basic System includes 716 diaphragm pump and mounting hardware. Instruction manual 308154.

223888

224700* 16-gal (60 l) System with 16-gal. (72.7 l) drum
Includes pump #224667, dolly #224665, wand storage kit #224666, evacuation hose #224669 and 16 gal drum #111468. Instruction manual 308154.

224763* 16-gal (60 l) System (without drum)
Includes same items as #224700 above, but no drum. Instruction manual 308154.

224701* 55-gal (200 l) System (without drum)
Includes pump #224667, 55 gal (200 l) drum truck #111470, wand storage kit #224666 and evacuation hose #224702. Instruction manual 308154.


224701

187359 4-Way Valve
1/2 npt(f) ports

**224759 FLR mounting kit and 110149 FRL must be ordered separately. See instruction manual 308163.*

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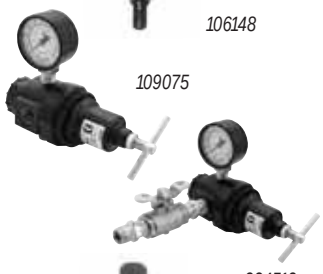
Airline Accessories
Accessories

Air Filters
Centrifugal action 1/4, 3/8 and 1/2 npt. (with 20 micron filters); 3/4 npt having 40 micron filters to remove water and foreign particles from air supply.
110146 1/4 npt(fbe)
106148 3/8 npt(fbe)
106149 1/2 npt(fbe)
106150 3/4 npt(fbe)

106148

Automatic Filter Drain
Float-type drain for automatic emptying of accumulated fluid in a filter assembly.
106151 1/4 npt(m) (does not fit air filter #110146)


109075

Air Regulators
Precision control of outlet air pressure. Feedback principle provides constant pressure to pump regardless of air demand rate and fluctuations in supply pressure. (Additional fittings are required except on air regulators with installation kits.)
110318 1/4 npt(fbe)
110147 1/4 npt(fbe) with gauge
110234 3/8 npt(fbe)
109075 3/8 npt(fbe) with gauge
202858 3/8 npt(m) x 1/2 npsm(f) with gauge
104266 1/2 npt(fbe)
244844 1/2 npt(fbe) with gauge
207755 3/4 npt(fbe)
244845 3/4 npt(fbe) with gauge

224512

Installation Kits
Installation kits include: shut-off valve, regulators, gauges and fittings as necessary for normal installation.
218316 Installation kits for Fast-Flo, Fire-Ball, or Husky 307 and 716 diaphragm pumps
224512 Installation kits for Falcon and Fire-Ball

214847

Air Lubricators
Extends pump life and smooths pump movement by applying measured lubricant to all moving parts within the pump air motor. Control knob and sight window allow adjustment of dispensed lubricant.
110148 1/4 npt(fbe)
214847 3/8 npt(fbe)
214848 1/2 npt(fbe)
214849 3/4 npt(fbe)

110150

FRL Combination Units
Each includes filter, regulator, pressure gauge, lubricator and connection fittings.
110149 1/4 npt(fbe)
110150 3/8 npt(fbe)
217072 1/2 npt(fbe)
217073 3/4 npt(fbe)

106151

Bleed-type Air Shut-off Valves
Closes air inlet to pump and relieves trapped air pressure downline from valve. Recommended for each pump drop line. (Note: Be certain to install correctly: if installed backwards air will constantly escape from the valve.)
110223 1/4 npt(fbe)
110224 3/8 npt(fbe)
110225 1/2 npt(fbe)
110226 3/4 npt(fbe)

110223

Air Line Shut-off Valves
Ball valve-type air line shut-off valve; non-pressure relieving.
208390 1/4 npt(mbe)
208393 3/8 npt(mbe)
107142 1/2 npt(mxf)
107141 3/4 npt(mxf)

107142

Quick-Connect Coupler
Permits quick, convenient attachment of air supply hoses.
208536 1/4 npt(fbe)
110198 3/8 npt(f)
110199 1/2 npt(f)
110200 3/4 npt(f)

208536

11

Air and Water Accessories
Accessories

Quick-Connect Nipple
Allows quick attachment of air supply hoses to pump motor.
169970 1/4 npt(m)
169967 1/4 npt(f)
169971 3/8 npt(m)
110196 1/2 npt(m)
110197 3/4 npt(m)

169970

Air Needle Valve
Controls pump speed by restricting air flow to pump or other air-operated equipment.
205090 1/4 npt(f) outlet port; 1/4 npt(m) inlet port
206264 1/8 npt(f) outlet port; 1/4 npt(m) inlet port

205090

Air Pressure Relief Valve
Prevents pump from operating beyond recommended working pressure by opening at a pre-set maximum air pressure.
103347 90 psi (6 bar)
110065 60 psi (4 bar)

110065

Air Pressure Gauge
Allows visual check of air pressure being supplied to the pump. Rated to 200 psi (14 bar).
110319 1/8 npt(m) bottom inlet; black
100960 1/4 npt(m) bottom inlet; black
101180 1/4 npt(m) bottom inlet; chrome

100960

Manifold
Supply several pumps from a common air supply line. Air inlet port is larger than delivery ports to ensure adequate air flow to all pumps.
158990 Four outlet ports; 3/8 npt(f)
601950 Three outlet ports; 1/2 npt(f)

158990

Runaway Valve
Prevents pump damage by automatically closing the air line to stop the pump when a runaway pump condition occurs due to an empty barrel or hose leak.
224040 3/4 npt(fbe)

224040

Blow Guns
Connects to coupler 208536.
208627 Air Blow Gun
1/4 npt(f)

208627

236211 Safety Blow Gun
Tip swivels freely and cannot be removed. Tip pressure will not exceed 30 psi (2 bar), yet provides an adequate blast of air for cleaning. Maximum Working Pressure 150 psi (10 bar).

Tire Inflators
236205 Heavy-Duty Tire Inflator
Includes 12 in (30 cm) hose with swivel dual-foot chuck and pop-out gauge. Tapered chuck nut fits wheel-cover holes on cars and light trucks. Gauge ranges from 0-120 psi in 2 psi increments. Maximum Working Pressure 250 psi (18 bar), 1/4 npt(f) inlet.

236206 Passenger Car Tire Inflator
Includes 12 in (30 cm) hose with straight-on chuck and pop-out gauge. Tapered chuck nut fits wheel cover holes on cars and light trucks. Ideal for use on reels. Gauge ranges from 0-90 psi in 2 psi increments. Maximum Working Pressure 250 psi (18 bar), 1/4 npt(f) inlet.

236206

218545 1/4 npt(f) Tire Chuck
Durable, full-volume tool for adding/relieving air pressure.

236211

Water Valve
180685 Water/Anti-Freeze Bibb
Durable, full-volume dispense nozzle for water, anti-freeze and windshield wash fluid. (1/4 npt(f) inlet).

180685

Hoses and Fittings
Accessories

Lubrication Hoses (Grease)

Heavy-duty reinforced hose for use with grease, oil and undercoating material. All hoses are black, male at both ends. Lubrication hoses listed herein are grounded for static electrical discharge.

1/4 in ID hoses with maximum pressure rating of 5000 psi (345 bar)

Part No.	Length	Fittings
109145	12 in (0.3 m)	1/8 in x 1/8 in with bend restrictor
109146	15 in (0.4 m)	3/8 in x 3/8 in (9.5 mm x 9.5 mm)
109147	24 in (0.6 m)	3/8 in x 3/8 in (9.5 mm x 9.5 mm)
109148	30 in (0.8 m)	1/8 in x 1/8 in with bend restrictor
109149	48 in (1.2 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109150	72 in (1.8 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109151	12 ft (3.6 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109152	15 ft (4.6 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109153	20 ft (6.1 m)	1/4 in x 3/8 in (6.4 mm x 9.5 mm)
109154	25 ft (7.6 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109156	35 ft (10.6 m)	1/4 in x 3/8 in (6.4 mm x 9.5 mm)
109157	40 ft (12.2 m)	1/4 in x 3/8 in (6.4 mm x 9.5 mm)
109158	50 ft (15.3 m)	1/4 in x 3/8 in (6.4 mm x 9.5 mm)

3/8 in ID hoses with maximum pressure rating of 4000 psi (276 bar)

Part No.	Length	Fittings
109160	12 in (0.3 m)	1/4 in x 1/2 in (6.4 mm x 12.7 mm)
109161	24 in (.62 m)	3/8 in x 3/8 in (9.5 mm x 9.5 mm)
109162	48 in (1.2 m)	3/8 in x 3/8 in (9.5 mm x 9.5 mm)
109163	72 in (1.8 m)	3/8 in x 3/8 in (9.5 mm x 9.5 mm)
109165	15 ft (4.6 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109167	25 ft (7.6 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109169	40 ft (12.2 m)	1/4 in x 3/8 in (6.4 mm x 9.5 mm)
109170	50 ft (15.3 m)	1/4 in x 3/8 in (6.4 mm x 9.5 mm)

Lubrication Hoses (Oil)

1/2 in ID hoses with maximum pressure rating of 3000 psi (207 bar)

Part No.	Length	Fittings
220604	12 in (0.3 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
110069	15 in (0.4 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
220598	18 in (0.5 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
220600	54 in (1.4 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
220591	72 in (1.8 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
220590	10 ft (3.1 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
220592	16 ft (4.9 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
220593	20 ft (6.1 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
220608	25 ft (7.6 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
221092	40 ft (12.2 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
221093	50 ft (15.3 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
237861	75 ft (22.9 m)	1/2 in x 3/4 in (12.7 mm x 19.1 mm)

1/2 in ID hose with maximum pressure rating of 5000 psi (345 bar)

Part No.	Length	Fittings
215444	50 ft (15.3 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)

Hoses and Fittings
Accessories

Lubrication Hoses (oil) continued

3/4 in ID hoses with maximum pressure rating of 2250 psi (155 bar)

Part No.	Length	Fittings
109108	18 in (0.4 m)	3/4 in x 3/4 in (19.1 mm x 19.1 mm)
109105	72 in (1.8 m)	3/4 in x 3/4 in (19.1 mm x 19.1 mm)
111010	10 ft (3.0 m)	3/4 in x 3/4 in (19.1 mm x 19.1 mm)
237865	75 ft (22.9 m)	1/2 in x 1 in (12.7 mm x 25.4 mm)
237866	50 ft (15.2 m)	1/2 in x 1 in (12.7 mm x 25.4 mm)

1 in ID hoses rated to maximum pressure of 125 psi (8.7 bar)

Part No.	Length	Fittings
237869	50 ft (15.2 m)	1 in x 1 in (25.4 mm x 25.4 mm)

1 in ID hoses rated to maximum pressure of 212 psi (14.6 bar)

Part No.	Length	Fittings
241908	50 ft (15.2 m)	1 in x 1 in (25.4 mm x 25.4 mm)
241907	30 ft (9.1 m)	1 in x 1 in (25.4 mm x 25.4 mm)

Tubing

Cut lengths as necessary for use as wand for gear case evacuation.

Nylon Tubing

Part No.	Length
181803	1/4 in x 12 ft (3.6m)

Air / Water Hoses

General purpose hoses for air, water, anti-freeze and windshield washer fluid. All hoses are red with male fittings at both ends.

Coiled 1/4 in ID hose with maximum pressure rating of 180 psi (12 bar)

Part No.	Length	Fittings
205600	50 ft (15.3 m)	1/4 in x 50 ft (6.4 mm x 15.3 m)

Fabric-Reinforced 1/4 in ID hoses with maximum pressure rating of 180 psi (12 bar)

Part No.	Length	Fittings
109123	18 in (.05 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109124	4 ft (1.2 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109125	6 ft (1.8 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109126	10 ft (3.1 m)	1/4 in x 1/4 in (6.4 mm x 6.4 mm)
109127	25 ft (7.6 m)	1/4 in x 1/2 in (6.4 mm x 12.7 mm)
109128	40 ft (12.2 m)	1/4 in x 1/2 in (6.4 mm x 12.7 mm)
218491	40 ft (12.2 m)	3/8 in x 1/4 in (9.5 mm x 6.4 mm)

3/8 in ID hoses with maximum pressure rating of 180 psi (12 bar)

Part No.	Length	Fittings
109129	15 in (0.4 m)	3/8 in x 1/2 in (9.5 mm x 12.7 mm)
204560	18 in (0.5 m)	3/8 in x 3/8 in (9.5 mm x 9.5 mm)
109130	4 ft (1.2 m)	3/8 in x 3/8 in (9.5 mm x 9.5 mm)
203320	6 ft (1.8 m)	3/8 in x 3/8 in (9.5 mm x 9.5 mm)
109131	10 ft (3.1 m)	3/8 in x 3/8 in (9.5 mm x 9.5 mm)
110326	16 ft (4.9 m)	1/4 in x 3/8 in (6.4 mm x 9.5 mm)
109132	25 ft (7.6 m)	3/8 in x 1/2 in (9.5 mm x 12.7 mm)
109133	30 ft (9.2 m)	3/8 in x 1/2 in (9.5 mm x 12.7 mm)

3/8 in ID hoses with maximum pressure rating of 180 psi (12 bar)

Part No.	Length	Fittings
218497	40 ft (12.2 m)	1/2 in x 3/8 in (12.7 mm x 9.5 mm)
109134	40 ft (12.2 m)	3/8 in x 1/2 in (9.5 mm x 12.7 mm)
109135	60 ft (18.3 m)	3/8 in x 1/2 in (9.5 mm x 12.7 mm)
218498	60 ft (18.3 m)	1/2 in x 3/8 in (12.7 mm x 9.5 mm)

1/2 in ID hoses with maximum pressure rating of 180 psi (12 bar)

Part No.	Length	Fittings
218093	22 in (.56 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
110046	4 ft (1.2 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
205418	6 ft (1.8 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
214656	10 ft (3.1 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
248312	25 ft (7.6 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)
248313	50 ft (15.3 m)	1/2 in x 1/2 in (12.7 mm x 12.7 mm)

3/4 in ID hoses with maximum pressure rating of 180 psi (12 bar)

Part No.	Length	Fittings
110047	18 in (0.4 m)	3/4 in x 3/4 in (19.1 mm x 19.1 mm)
110048	4 ft (1.2 m)	3/4 in x 3/4 in (19.1 mm x 19.1 mm)
208610	6 ft (1.8 m)	3/4 in x 3/4 in (19.1 mm x 19.1 mm)
214955	10 ft (3.1 m)	3/4 in x 3/4 in (19.1 mm x 19.1 mm)
208611	25 ft (7.6 m)	3/4 in x 3/4 in (19.1 mm x 19.1 mm)

Hoses and Fittings
Accessories

Pipe Fittings

Bushing - Reducing, Standard and Expanding

Part No.	Thread Size (male x female)
100030	1/4 in x 1/8 in
159841	3/8 in x 1/4 in
100206	1/2 in x 1/4 in
100081	1/2 in x 3/8 in
100615	3/4 in x 1/4 in
100505	3/4 in x 3/8 in
100896	3/4 in x 1/2 in
100380	1 in x 1/2 in
158586	1 in x 3/4 in

Pipe Adapters

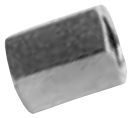
Part No.	Thread Size (male x female)
150171	1/8 in x 1/8 in
159840	1/8 in x 1/4 in
156580	1/8 in x 3/8 in
150287	1/4 in x 3/8 in
159842	1/4 in x 1/2 in
150286	3/8 in x 3/8 in
156022	3/8 in x 1/2 in
168595	1/2 in x 3/4 in

Street Elbows

Part No.	Thread Size (male x female)
100840	1/4 in x 1/4 in
155699	3/8 in x 3/8 in
158683	1/2 in x 1/2 in
176393	3/4 in x 3/4 in

Coupling (standard)

Part No.	Thread Size
100451	1/8 in
113093	1/4 in
162024	3/8 in
158581	1/2 in
100385	3/4 in
100474	1 in



Hex Nipple (standard and reducing)

Part No.	Thread Size
151519	1/4 in x 1/8 in
156971	1/4 in x 1/4 in
156296	3/8 in x 1/8 in
165198	3/8 in x 1/4 in
156849	3/8 in x 3/8 in
162449	1/2 in x 1/4 in
159239	1/2 in x 3/8 in
158491	1/2 in x 1/2 in
194048	3/4 in x 3/8 in
157191	3/4 in x 1/2 in
175013	3/4 in x 3/4 in
158555	1 in x 3/4 in

Square-Head Plug

Part No.	Thread Size
111697	1/4 in
100040	3/8 in
100737	1/2 in
104663	3/4 in

Pipe Swivels

Straight Swivel Adapter

Part No.	Rigid thread (M) x Swivel thread (F)
208434*	1/8 in x 1/4 in
156823	1/4 in x 1/4 in
157705	1/4 in x 3/8 in
155665	3/8 in x 3/8 in
162505	3/8 in x 1/2 in
156684	1/2 in x 1/2 in
158256	1/2 in x 3/8 in
157785	3/4 in x 3/4 in
202965	1 in x 3/4 in
160022	1 in x 1 in

**Not a "live" swivel*

90° Swivel Adapter (both ends female)

Part No.	Rigid thread x Swivel thread
157676	1/4 in x 1/4 in
155677	3/8 in x 3/8 in
159801	3/8 in x 1/2 in
157416	1/2 in 1/2 in
156589	3/4 in x 3/4 in

Straight Swivel Adapter (both ends female)

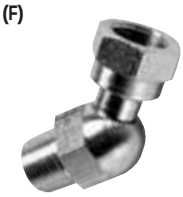
Part No.	Rigid thread x Swivel thread
155570	1/4 in x 1/4 in
159153	3/8 in x 1/4 in
156173	3/8 in x 3/8 in
155653	1/2 in x 1/4 in
161077	1/2 in x 3/8 in
155865	1/2 in x 1/2 in
156172	3/4 in x 3/4 in
158383	1 in x 1 in

90° Swivel Adapter

Part No.	Rigid thread (M) x swivel thread (F)
155541	1/4 in x 1/4 in
155495	3/8 in x 1/4 in
155494	3/8 in x 3/8 in
217430	3/8 in x 1/2 in
161037	1/2 in x 3/8 in
155470	1/2 in x 1/2 in
160327	3/4 in x 3/4 in

45° Swivel Adapter

Part No.	Rigid thread (M) x swivel thread (F)
161889	3/8 in x 3/8 in
105281	3/4 in x 3/4 in



11

Hoses and Fittings
Accessories

Tube Fittings

Maximum fluid pressure rating of 3000 psi (207 bar) when coupled with appropriate tubing wall thickness. Reference Steel Tubing and Iron Pipe Information on page 157.

Male Connector

Part No.	Tube O.D.	Thread
101339	7/8 in	3/4 npt

Female Connector - Straight

Part No.	Tube O.D.	Thread
101008	5/8 in	1/2 npt
101520	7/8 in	3/4 npt

Tube Union Flow 90° Elbow

Part No.	Tube O.D.	Thread
101012	5/8 in	
101376	7/8 in	

Tube Tee with Female Branch

Part No.	Tube O.D.	Thread
101013	5/8 in	5/8 npt
101378	7/8 in	3/4 npt

Tube Union - Straight

Part No.	Tube O.D.	Thread
101009	5/8 in	
101340	7/8 in	

Consult your local distributor of the following product lines for additional tube-fitting requirements (i.e.: high-pressure, low-pressure, etc.) and fitting recommendations: Parker; AeroQuip; Weatherhead; Lenz; Crawford; or Imperial Eastman.

Notes

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Fire-Ball 300, 15:1 Packages

Undercoating/Rust-Proofing Packages

Features and Benefits

- Available in carbon steel for petroleum-based undercoatings or SST for water-based materials
- Durable air motor provides trouble-free operation

Typical Application

- Application of undercoating, rust-proofing and sound-deadening materials
- Automotive dealerships
- Heavy duty dealerships
- Fast lube centers
- Fleet service facilities
- Service shops

Typical Fluids Handled

- Undercoating*
- Rust-proofing*
- Sound deadening material

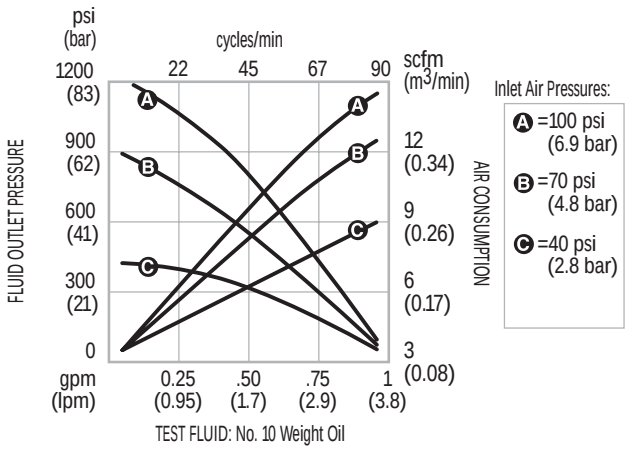
** Verify chemical compatibility for pump's wetted components with undercoating material supplier or contact Graco directly at 1-800-533-9655.*

222077

Technical Specifications

Maximum Fluid Pressure	2700 psi (186 bar, 18.6 MPa)
Effective Air Motor Diameter	3 in (76.2 mm)
Operating Range	40 to 180 psi (2.8 to 12.5 bar)
Continuous-Duty Flow Rate	0.7 gpm (2.7 lpm)
Approx. Air Consumption @ 100 psi (7 bar)	17 cfm
Air Inlet	3/8 npt(f)
Material Outlet	1/4 npt(f)
Material Inlet for Non-SST Pump	1 npt (straight inlet)
Material Inlet for 224825 (SST Pump)	1 npt (barbed inlet)
Wetted Parts for Non-SST Pump	CS, Aluminum, PTFE, Rubber
Wetted Parts for SST pump	SST, Aluminum, Leather, PTFE, Rubber
Instruction Manual for non-SST Pump	306531
Instruction Manual for SST Pump	308069

Pump Performance



TEST FLUID: No. 10 Weight Oil

12

Fire-Ball 300, 15:1 Packages
Selection Chart

	Portable Package	Portable Dolly-Mounted Package	Stationary Package	Bung-Mounted Stationary Package
Container Size	35 lb (16 kg)	120 lb (54 kg)	400 lb (180 kg)	400 lb (180 kg)
Packages	**222077**	**226342**	**226269**	**224826***
Pump	206405	206699	206700	224825 (SST pump)
Dispense Kit	222079	222079	222082	224023
Tip	286517	286517	286517	286211/286621
Hose Length	15 ft (4.6 m)	15 ft (4.6 m)	25 ft (7.6 m)	25 ft (7.6 m)
Cover	222058	204574	200326	-
Caster Base	-	204144	-	-
Instruction Manual	307879/306531	307879/306531	307879/306531	308069

222077

226342

226269

224826

** Package #224826 includes flexible short tube #224022 long enough for 400 lb (180 kg) container, but can be trimmed to accommodate smaller containers.*

Fire-Ball 300, 15:1 Packages
Accessories

214570 Screen filter (aluminum)
Comes with 60-mesh filter. Optional items available below.
(3/8 npt(f) inlet; 1/4 npt(f) outlet) Maximum working pressure: 3000 psi (210 bar)

214570

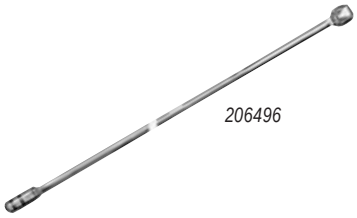
Replacement Screen Elements (SST)

3-pack/25-pack	Mesh
238435/238436	30-mesh
238437/238438	60-mesh
238439/238440	100-mesh

202577 Z-Swivel
Allows non-binding movement of hose for difficult-to-reach spots.
Must order 155570 adapter separately to accommodate 234237 gun.

202577

206496 Nozzle Extension
Length 30-3/4 in (99 cm) with 7/8-14(f) end. Steel-tube conical tip delivers 360º coating fan into blind areas. Use for unfilled wax and graphite products. Tip #206502, orifice size .043.


206496

234237 4 Finger Silver Gun with RAC 5 Tip
Standard gun for undercoating packages. Comes with tip guard 243161 and tip 286517. 4500 psi (310 bar) with a 3/8 npt(f) inlet. Must order 155570 adapter and 239663 straight swivel to accommodate gun to 1/4" (mbe) hose.

Rac 5 Tip Selection Chart

Tips must be ordered separately.

Fan Width	Orifice Size in inches (mm)						
	.015(.38)	.017(.43)	.019(.48)	.021(.53)	.023(.58)	.025(.63)	.027(.69)
6 in (15.24 cm)	286315	286317	286319	286321	286323	286325	286327
8 in (20.32 cm)	286415	286417	286419	286421	286423	286425	286427
10 in (25.4 cm)	286515	286517	286519	286521	286523	286525	286527
12 in (30.48 cm)	286615	286617	286619	286621	286623	286625	286627

234237

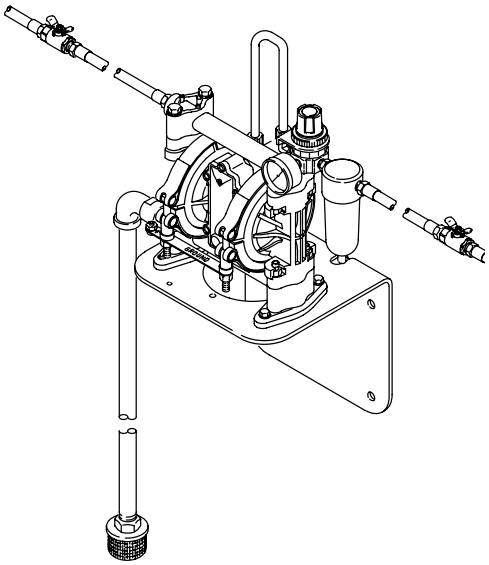
Note: Fan width is spray pattern width as measured 12 in (30.48 cm) from spray tip orifice.
Rac 5 is not interchangeable with older style GHD tips.

12

Windshield Wash
Packages

Packages for Pre-Mixed Windshield Wash Solvent

Powered by the 307 air-operated double-diaphragm pump, this package is designed for transferring and dispensing pre-mixed windshield wash.



237161 Package number*

Includes items below:

109125	6 ft (1.8 m) air hose
220596	4 ft (1.2 m) coupled nitrile fluid hose
110146	3/8-18 npt x 1/2-14 npt(mbe) air filter
108190	Air gauge
111511	Air line fitting
110318	1/4 npt air regulator
100611	Elbow
187479	15 in (381 mm) 3/8 in ID tube
190125	Mounting bracket
156022	Adapter
156971	1/4-18 npt nipple
223888	Suction hose kit 6 ft (1.8 m) coupled PVC hose and 304 SST 16 mesh strainer.
224835	Wall bracket
D31255	307 Diaphragm Pump

**Can be ordered separately without pump.*

237160 Package number

Includes all items listed above except D31255 Diaphragm Pump and 223845 wall bracket.

Tank Packages

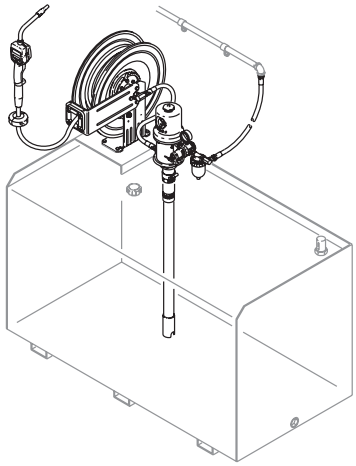
Package Solutions (Tanks not included)

Mini Fire-Ball 225, 3:1 Bulk-Oil Dispensing Packages (tanks not included)

248623* **Mini Fire-Ball 225, 3:1 Pump Package**
Includes:
248907 Mini Fire-Ball 225 Universal pump with bung adapter and down tube
237022 350 Series reel with 50 ft (15.2 m) x 1/2 in (12.7 mm) fluid hose
238461 EM5 meter

248622* **Mini Fire-Ball 225, 3:1 Pump Package**
Includes:
248907 Mini Fire-Ball 225, 3:1 Universal pump with bung adapter and down tube
240963 250 Series reel with 25 ft (7.6m) x 1/2 in (12.7 mm) fluid hose
238461 EM5 meter

**Tanks not included*



Package
244091 shown
(tank not included)

12

Tank Packages

Package Solutions (Tanks not included)

Fire-Ball 300, 5:1 Deluxe Bulk-Oil Dispensing Packages (tanks not included)

241633* Fire-Ball 300, 5:1 Package

Includes:

203876 Fire-Ball 300, 5:1 pump universal
109075 3/8 in (9.5 mm) regulator/gauge
156849 3/8 in (9.5 mm) x 3/8 in (9.5 mm) nipple
222308 2 in (50.8 mm) bung adapter
240963 250 Series reel with 25 ft (7.6m) x 1/2 in (12.7 mm) hose
238461 EM5 meter

224541* Fire-Ball 300, 5:1 Package

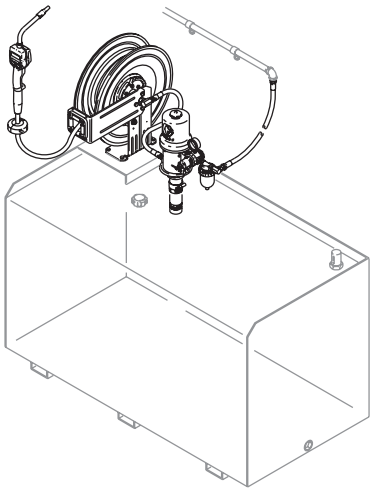
Includes:

203876 Fire-Ball 300, 5:1 pump universal
109075 3/8 in (9.5 mm) regulator/gauge
156849 3/8 in (9.5 mm) x 3/8 in (9.5 mm) nipple
222308 2 in (50.8 mm) bung adapter
237022 350 Series reel with 50 ft (15.3m) x 1/2 in (12.7 mm) hose
220598 18 in (45.7 cm) hose
157416 90º swivel (inlet on hose reel)
238461 EM5 meter

244038* Fire-Ball 300, 5:1 Package

Includes:

203876 Fire-Ball 300, 5:1 pump universal
109075 3/8 in (9.5 mm) regulator/gauge
156849 3/8 in (9.5 mm) x 3/8 in (9.5 mm) nipple
222308 2 in (50.8 mm) bung adapter
237022 350 Series reel with 50 ft (15.3m) x 1/2 in (12.7 mm) hose
220598 18 in (45.7 cm) hose
157416 90º swivel
238511 PM5 meter



Package
224541 shown
(tank not included)

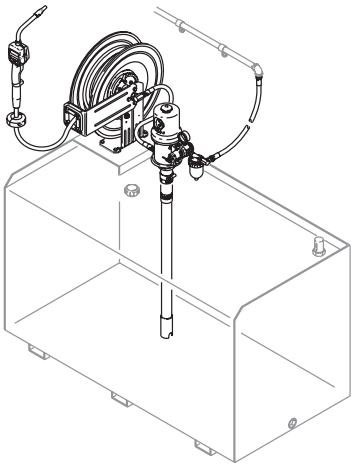
Fire-Ball 300, 5:1 Deluxe Bulk-Oil Dispensing Packages (tank not included)

224534* Dispensing from Bench-Top Tanks with Fire-Ball 300, 5:1 Pump Package

Includes:

203876 Fire-Ball 300, 5:1 pump, Universal
109075 3/8 in (9.5 mm) regulator/gauge
106148 Air filter
156849 3/8 in (9.5 mm) x 3/8 in (9.5 mm) nipple
237022 350 Series reel with 50 ft (15.3m) x 1/2 in (12.7 mm) hose
106151 Drain valve
222063 72 in (182.9 cm) hose kit
237893 Thermal relief valve
238461 EM5 meter
157416 90º swivel
222308 Bung adapter

**Tanks and down tube not included*



Package
224534 shown
(tank not included)

Bulk Package Specifications for Oil

Package Solutions

1. Select the pump for your application based on:

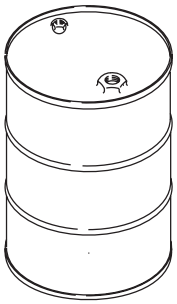
- Oil weight-viscosity
- Environment temperature
- Application flow rate required
- Distance oil is pumped
- Supply line size
- Number of dispense locations
- Additional flow restrictions – reels, valves and meters
- Available air volume and pressure

2. Establish type of container being used

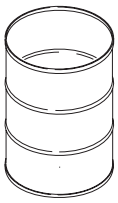
A. Bulk Containers – Type

- Bottom outlet
- Top outlet
- Stationary
- Portable

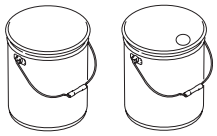
B. Drum/Containers – Sizes



Closed Head Drum
55 gal (205 l)



Open Head Drum
16 gal (60 l)



Pail
5 gal (20 l)

Bulk Package Specifications for Oil
Package Solutions

3. Choose the package solution to fit your needs

Typical Installations for Bulk Oil tanks

A. Floorstand Mount with King or Bulldog Pumps.
For stationary large tank installations with stand alone pump.

B. Wall Mount with King or Bulldog Pumps.
For stationary large tank installations with wall or vertical support

C. Wall Mount bracket with Fire-Ball Pumps.
For portable tank/tote installations.

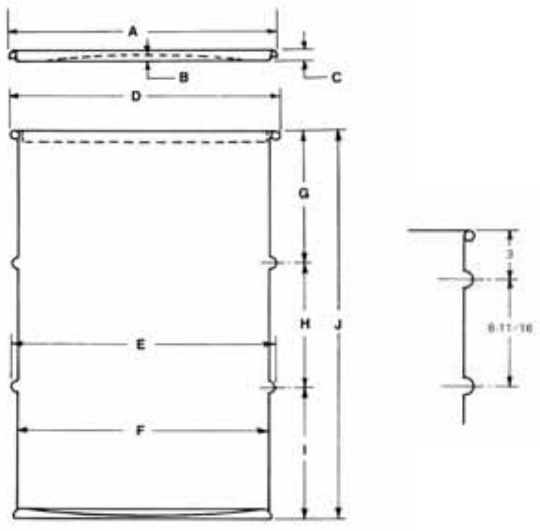
D. Air Motor Flange Mount.
For transportation tanks as commonly found on lube trucks.

E. Bung Mount.
For installations with 2 npt bung hole.

Drum Specifications

Size	Imperial Size	Volume (gal)	Body Material	Dimensions (in inches) A	B	C	D	E	F	G	H	I	J
55 gal	45 gal	57.2 - 57.75	Steel, 18 gage	23-11/16	–	7/8	23-1/2	23-17/32	22-1/2	11-7/8	11	11-7/8	34-3/4
55 gal*	45 gal	59.28 - 59.85	Steel, 18 gage	23-11/16	–	7/8	23-1/2	23-17/32	22-1/2	12-1/2	11	12-1/2	36
55 gal	45 gal	57.2 - 57.75	Steel, 18 gage	23-11/16	3/8	7/8	23-1/2	23-27/32	22-1/2	–	11	11-11/16	34-3/8
30 gal	25 gal	31.2 - 31.45	Steel, 18 gage	19-7/16	3/8	7/8	19-1/4	19-19/32	18-1/4	8-7/8	11	8-7/8	28-3/4
30 gal	25 gal	31.2 - 31.45	Steel, 19 gage	19-7/16	–	7/8	19-1/4	19-19/32	18-1/4	8-7/8	11	8-7/8	28-3/4
16 gal	–	16	Steel, 20 gage	14-3/4	–	5/8	14-9/16	14-7/8	13-15/16	7-5/8	11	8	26-5/8
16 gal**	–	16.64 - 16.89	Steel, 20 gage	14-3/4	–	lug cover	14-9/16	14-7/8	13-15/16	7-5/8	11	8	26-5/8

** Also 400 lb edible fats drum*
*** Also 120 lb grease drum*



Bulk Package Specifications for Grease

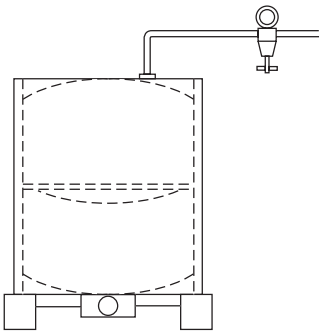
Package Solutions

1. Select the pump for your application based on:

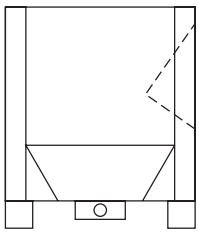
- NLGI number – viscosity
- Temperature environment
- Application flow rate required
- Distance being pumped
- Supply line size
- Additional flow restrictions – reels, valves and meters
- Number of dispense locations
- Available air volume and pressure

2. Establish type of container being used

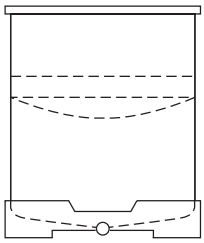
A. Bulk Containers – Type



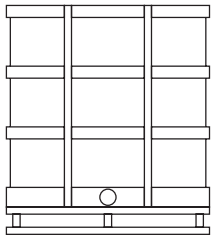
Pressurized with Follower



Sloped Bottom

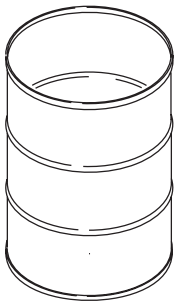


Non-Pressurized with Follower

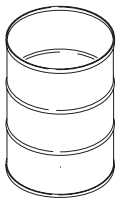


Bag in a Box

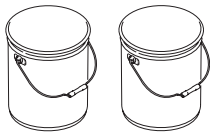
B. Drum/Containers – Sizes



Open Head Drum
400 lb (180 kg)



Open Head Drum
120 lb (55 kg)



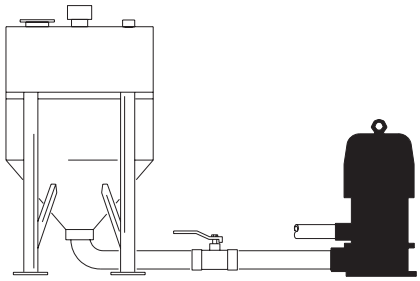
Pail
35 to 50 lb
(16 to 23 kg)

12

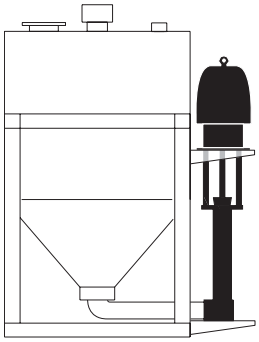
Bulk Package Specifications for Grease
Package Solutions

3. Choose the package solution to fit your needs
Bulk Containers
Floorstand-Mounted Systems for use with large King and Bulldog Pumps

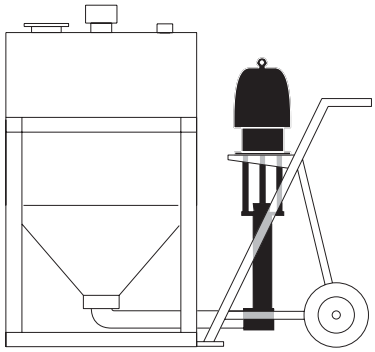
If you use a King or Bulldog pump, select one of the following mountings below.



Floorstand Mount
For stationary locations



Shelf Mount
For rigidity and stability.
Can be used on trucks

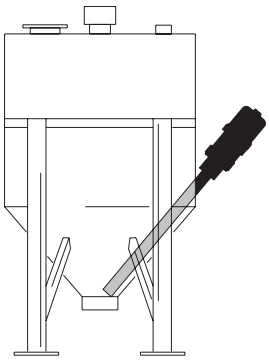


Cart Mount
For mobility.

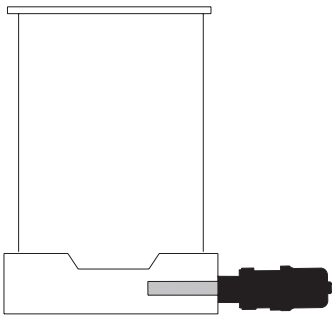
Flange-Mounted Systems for use with Fire-Ball Pumps

If you use a Fire-Ball pump, select one of the following mountings below.

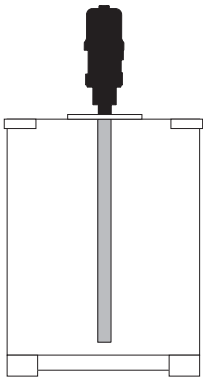
see page 45 for flange-mounting accessories



Side Pocket Mount



Horizontal Mount



Top Mount

12

High Volume Pumps

King and Bulldog Air Motor 7 in and 10 in Diameter

- Corrosion resistant – lightweight aluminum construction
- Reliable – tested to 10 million cycles without failure
- Added safety – grounding lud prevents static build-up
- Reduced pulsation – in-line air valve assembly allows rapid changeover
- Quiet – large shroud diffuses exhaust downward

Oil Pumps

Bare Pump Part Number	Ratio	Container Size	Max Air Pressure	Max Oil Pressure	Recommended Max Flow Rate	Max Free Flow Capacity
King – 10 in (254 mm) Diameter Air Motor						
222837	28:1	Bulk Tank	90 psi (6.1 psi)	2520 psi (171.5 bar)	5.8 gpm (21.8 lpm)	N/A
222832	20:1	Bulk Tank	90 psi (6.1 psi)	1800 psi (122.5 bar)	7.7 gpm (29.1 lpm)	N/A
Bulldog – 7 in (178 mm) Diameter Air Motor						
222831	14:1	Bulk Tank	100 psi (6.8 bar)	1400 psi (95.3 bar)	6.9 gpm (26.1 lpm)	N/A
222826	10:1	Bulk Tank	100 psi (6.8 bar)	1000 psi (69 bar)	9.2 gpm (34.9 lpm)	N/A
221104	5:1	Bulk Tank	100 psi (6.8 bar)	500 psi (34 bar)	15 gpm (57 lpm)	N/A
220577	4:1	Bulk Tank	100 psi (6.8 bar)	400 psi (27.2 bar)	24 gpm (90.8 lpm)	N/A

Grease Pumps

Bare Pump Part Number	Ratio	Container Size	Max Air Pressure	Max Grease Pressure	Recommended Max Flow Rate	Max Free Flow Capacity
King – 10 in (254 mm) Diameter Air Motor						
236471	65:1	Bulk or Drum/Ram	90 psi (6.1 bar)	5850 psi (398 bar)	2.8 gpm (10.6 lpm)	N/A
222545	55:1	Bulk of Drum/Ram	90 psi (6.1 bar)	5000 psi (340 bar)	3 gpm (11.4 lpm)	N/A
222835	24:1	Bulk or Drum/Ram	90 psi (6.1 bar)	2160 psi (146.9 bar)	7.3 gpm (27.7 lpm)	N/A
Bulldog – 7 in (178 mm) Diameter Air Motor						
222778	55:1	Bulk, Drum/Ram or Drum/Inductor	90 psi (6.1 bar)	4950 psi (336.7 bar)	1.7 gpm (6.5 lpm)	N/A
237261	31:1	Bulk, Drum/Ram or Drum/Inductor	100 psi (6.8 bar)	3100 psi (210.9 bar)	2.8 gpm (10.6 lpm)	N/A
222828	12:1	Bulk, Drum/Ram or Drum/Inductor	100 psi (6.8 bar)	1200 psi (81.6 bar)	7.3 gpm (27.7 lpm)	N/A
205148	3:1	Bulk, Drum/Ram or Drum/Inductor	120 psi (8.2 bar)	360 psi (24.4 bar)	15 gpm (57 lpm)	25 gpm (95 lpm)

Air Inlet	Oil Inlet	Oil Outlet	Instruction Manual
3/4 npsm(f)	2 npt(f)	1-1/2 npt(m)	308147
3/4 npsm(f)	2 npt(f)	1-1/2 npt(m)	308151
3/4 npsm(f)	2 npt(f)	1-1/2 npt(m)	308147
3/4 npsm(f)	2 npt(f)	1-1/2 npt(m)	308151
3/4 npsm(f)	2 npt(f)	1-1/2 npt(f)	308871
3/4 npsm(f)	1-1/2 npt(f)	1 npt(f)	307809

222826

Air Inlet	Grease Outlet	Instruction Manual
3/4 npsm(f)	1 npt(f)	308351
3/4 npsm(f)	1 npt(f)	307982
3/4 npsm(f)	1-1/2 npt(m)	308149 (Fluid Pump) 306968 (Air Motor)
3/4 npsm(f)	3/4 npt(m)	308017
3/4 npsm(f)	3/4 npt(m)	308351
3/4 npsm(f)	1-1/2 npt(m)	308149
3/4 npsm(f)	2 npt(m)	306642

Bulk Transfer
Package Solutions

Air Operated Transfer Packages for Bulk Grease Totes

Description	12:1 Bulldog Stand Mount	31:1 Bulldog Stand Mount	3:1 Bulldog Stand Mount	55:1 Bulldog Stand Mount	24:1 King Stand Mount	55:1 King Stand Mount	65:1 King Stand Mount	Viscount II Stand Mount
Package No.	**244649**	**244650**	**244651**	**244652**	**244653**	**244654**	**244655**	**244656**
Pump	222828	237261	205148	222778	222835	222545	236471	222902
Air Connect Hose	208610	208610	208610	208610	208610	208610	208610	–
Fluid Connect Hose	115042	244657	244658	244657	115042	244657	244657	115042
Air Shut-off Valve	110226	110226	110226	110226	110226	110226	110226	–
Air Regulator Kit	244845	244845	244845	244845	244845	244845	244845	–
Mounting/ Connection Kit	222776	222776	224148	222776	222776	223090	222776	222776
Floor Stand	223952	223952	223952	223952	223952	223952	223952	223952
Instruction Manual	309344	309344	309344	309344	309344	309344	309344	309344

Air Operated Transfer Packages for Bulk Grease Totes

Description	50:1 Fire-Ball 300 Side Pocket Mount	50:1 Fire-Ball 300 Horizontal Mount	50:1 Fire-Ball 425 Side Pocket Mount	75:1 Fire-Ball 425 Side Pocket Mount	75:1 Fire-Ball 425 Horizontal Mount
Package No.	**244644**	**244645**	**244646**	**244647**	**244648**
Pump	239888	239877	205395	239730	239731
Air Shut-off Valve	110224	110224	110225	110225	110255
Fluid Shut-off Valve	202869	202869	202869	202869	202869
Hose & Fitting Kit	222072	222072	222076	222076	222076
Air Regulator Kit	109075	109075	244844	244844	244844
Flange Adapter	948393	948393	948392	948392	948392
Flange Coupler	512874	512874	512874	512874	512874
Instruction Manual	309350	309350	309350	309350	309350

Air Operated Transfer Packages for Bulk Grease Drums

Description	65:1 King Ram 400 lb (181 kg) drum	55:1 Bulldog Ram 400 lb (181 kg) drum	12:1 Bulldog Ram 400 lb (181 kg) drum	3:1 Bulldog Ram 400 lb (181 kg) drum	3:1 Bulldog* Sinker 400 lb (181 kg) drum	5:1 Dyna-Star 120 lb (55 kg) drum	5:1 Dyna-Star 400 lb (181 kg) drum
Package No.	**244638**	**244639**	**244640**	**244641**	**244848**	**244642**	**244643**
Pump	236471	222778	222828	205148	205148	224751	224752
Air Connect Hose	208610	208610	208610	208610	208610	–	–
Fluid Connect Hose	244657	244657	115042	244658	244658	109163	109163
Hydraulic Fluid Controls	–	–	–	–	–	236864	236864
Drum Cover	–	–	–	–	–	204574	200326
Follower Plate/Inductor	–	–	–	–	222404	223700	223701
Ram	207279	207279	207279	207279	–	–	–
Air Regulator Kit	207651	207651	207651	207651	207651	–	–
Drum Clamp	206537	206537	206537	206537	–	–	–
Instruction Manual	309345	309345	309345	309345	309345	309345	309345

**205028 Sinker pump with 205148 bare pump can be ordered separately, see instruction manual 306642.*

Bulk Transfer
Package Solutions

Air Operated Bulk Oil Transfer Packages

Description	4:1 Bulldog Floor Stand	5:1 Bulldog Wall Mount	10:1 Bulldog Floor Stand	10:1 Bulldog Wall Mount	14:1 Bulldog Floor Stand	20:1 King Wall Mount
Package No.	**241360**	**244629**	**241361**	**244630**	**241362**	**244631**
Pump	220578	221104	222826	222827	222831	222832
Filter, Regulator, Lubricator	217073	217073	217073	217073	217073	217073
Air Connect Hose	208610	110047	208610	110047	208610	110047
Fluid Connect Hose	115042	115042	115042	115042	115042	115042
Air Shut-off Valve	113332	110226	113332	110226	113332	110226
Fluid Shut-off	–	512152	–	512152	–	512152
Wall Mount Bracket	–	206221	–	206221	–	206221
Floor Stand	220581	–	220581	–	220581	–
Instruction manual	308949	309351	308949	309351	308949	309351

Hydraulic Operated Bulk Oil Transfer Packages

Description	1:1 Dyna-Star Wall Mount	1/4:1 Dyna-Star Wall Mount	1:1 Power-Star Wall Mount	1:1 Dyna-Star 55 Gal. (200 l) Bung Mount
Package No.	**244632**	**244633**	**244634**	**244678**
Pump	224741	236753	236754	224742
Fluid Connect Hose	220598	220598	220598	220591
Fluid Shut-off	108458	108458	108458	108458
Hydraulic Fluid Controls	236864	236864	236865	236864
Wall Mount Bracket	203987	236778	236778	–
Bung Adapter	–	–	–	222308
Instruction Manual	309352	309352	309352	309352

Air Operated Bulk Anti-Freeze and Windshield Solvent Transfer Packages

Description	1040 AODD Dual Inlet	1040 AODD Single Inlet	716 AODD Dual Inlet	716 AODD Single Inlet
Package No.	**244679**	**244680**	**244681**	**244682**
Pump	236265	236265	243669	241906
Air Regulator	109075	109075	110147	110147
Fluid Connect Hose	115042	115042	109105	109105
Air Connect Hose	205418	205418	109125	109125
Air Shut-off Valve	110224	110224	110223	110223
Wall Mount Bracket	189233	189233	224835	224835
Dual Inlet Manifold	685984	–	–	–
Suction Kit	2-236054	236054	2-236054	236054
Thermal Relief Kit	238428	238428	113497	113497
Instruction Manual	309353	309353	309353	309353

Lube Truck Packages

Package Solutions

Lube Truck Packages for Oil

	Fire-Ball 300 Cover-Mounted Package	Fire-Ball 300 Cover-Mounted Package	Fire-Ball 300 Bung-Mounted Package	Fire-Ball 425 Cover-Mounted Package	Fire-Ball 425 Bung-Mounted Package
Ratio	5:1	5:1	5:1	10:1	10:1
Container Size	16 gal (60 l)	55 gal (200 l)	55 gal (200 l)	55 gal (200 l)	55 gal (200 l)
	Open-head	Open-head	Closed-head†	Open-head	Closed-head†
Package No.	**222086**	**206655**	**204264**	**206656**	**222067**
Bare Pump No.	203872	203857	204254	222065	222095
Hose/Fitting Kit	222063	222063	222063	222066	222066
Hose Length	6 ft (1.8 m)	6 ft (1.8 m)	6 ft (1.8 m)	6 ft (1.8 m)	6 ft (1.8 m)
Air Regulator	*	*	*	**	**
Hold-Down Kit	222061	207361	207361	207361	207361
Drum Cover	222060	207367	-	207367	-
Bung Adapter	-	-	204076	-	224579
Pump Clamp	-	-	204095	-	204095
Instruction Manual	307883	307883	307883	307883	307883

222086

206656

222067

† For closed-head drums, pump mounts off-center on drum cover. Pump draws through standard 2 npt bung opening and is equipped with grommet for rain-tight seal to the drum cover.

** Order 3/8 in (9.5 mm) air regulator and gauge separately, #109075.*

*** Order 1/2 in (12.7 mm) air regulator #104266 and gauge #100960 separately.*

Lube Truck Packages
Package Solutions

Lube Truck Packages for Grease

	Fire-Ball 300 Cover-Mounted Package	Fire-Ball 300 Cover-Mounted Package	Fire-Ball 425 Cover-Mounted Package	Fire-Ball 425 Cover-Mounted Package	Fire-Ball 425 Cover-Mounted Package	Fire-Ball 425 Cover-Mounted Package
Ratio	50:1	50:1	50:1	50:1	75:1	75:1
Container Size	120 lb (55 kg)	400 lb (180kg)	120 lb (55 kg)	400 lb (180 kg)	120 lb (55 kg)	400 lb (180 kg)
	Open-head	Open-head	Open-head	Open-head	Open-head	Open-head
Package No.	**222085**	**222071**	**223107**	**222075**	**243817**	**243818**
Bare Pump No.	239887	239888	205394	205395	239729	239730
Hose/Fitting Kit	222072	222072	222076	222076	222076	222076
Hose Length	6 ft (1.8 m)	6 ft (1.8 m)	6 ft (1.8 m)	6 ft (1.8 m)	6 ft (1.8 m)	6 ft (1.8 m)
Air Regulator	*	*	**	**	**	*
Hold-Down Kit	222061	207361	222061	207361	222061	207361
Drum Cover	222060	207366	222060	207366	222060	207366
Follower Plate	220654	223845	223344	223846	223344	223846
Instruction Manual	307880	307880	307880	307880	307880	307880

223107

222075

** Order 3/8 in (9.5 mm) air regulator and gauge separately, #109075.*
*** Order 1/2 in (12.7 mm) air regulator #104266 and gauge #100960.*

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Automatic Lubrication

For Sale to Authorized Distribution Only

Fire-Ball

241573 Fire-Ball 300, 50:1 Pump Module
Includes Fire-Ball 300, 50:1 pump #239887, 90 lb (41 kg) reservoir assembly #241486 and vent valve assembly #241572

241486 Reservoir Assembly
Includes 90 lb (41 kg) reservoir, gasket and cover.

241572 Vent Valve Assembly
Includes vent valve #115121, air pressure relief valve #115122, vent valve mounting bracket with vent valve air and fluid hose. Instruction manual 308955.

241573

Dyna-Star

243159 Dyna-Star 5:1 Pump Module
Includes Dyna-Star pump #224751, 90 lb (41 kg) reservoir assembly #241486, hydraulic control assembly #243501 and vent valve assembly #243170 fully assembled.

241486 Reservoir Assembly
Includes 90 lb (41 kg) reservoir, gasket and cover.

243501 Hydraulic Control Assembly
Includes hydraulic manifold with pressure gauge #802072, pressure reducing valve #115774, flow control valve #115773, 24 volt solenoid #115775 and necessary hose, fitting and connectors.

243170 Hydraulic Vent Valve Assembly
Includes vent valve #242063, pressure relief valve #115122 and necessary hose, fittings and connectors. Instruction manual 309098.

243159

Accessories

241485 Follower Plate
Includes a flexible rubber wiper ring.

115123 Lubrication Controller, 24 volt
For controlling and monitoring automatic lubrication systems.

114488 Air Solenoid, 24 volt
3-way solenoid 3/8 npt (fbe).

115124 Pressure Switch
Used with lubrication controller #115123 to control and monitor system operation.

Filter/Regulator/Lubricator for filtering, regulating and lubricating incoming air pressure
110149 1/4 npt(fbe)
110150 3/8 npt(fbe)

Air Regulator with Gauge for regulating incoming air pressure
110147 1/4 npt(fbe)
109075 3/8 npt(fbe)

Bleed-Type Air Valve for shutting off air and relieving downstream air pressure
110223 1/4 npt(fbe)
110224 3/8 npt(fbe)

Automatic Lubrication

Specialized Distribution –
Call Graco Customer Service for Locations at 1.800.533.9655

114903

GL-1 Injector

Graco Part No.	GL-1 Injector Description	Mounting Hole Spacing; in (mm)	Manifold Length in (mm)
114901	One Point	NA (one hole)	2.48 (63.0)
114902	Two Point	NA (one hole)	3.00 (76.0)
114903	Three Point	1.25 (31.7)	4.23 (107.5)
114904	Four Point	2.50 (63.4)	5.47 (139.0)
114905	Five Point	3.75 (95.1)	6.71 (170.5)
114909	Replacement	NA	NA
114910	npt Single - 3/8 npt(m)	NA	NA

Injector Repair Kit (241234) includes wear items.

115123

Lubrication Controller

115123 Lubrication Controller, 24 volt
Instruction manual 308950.

Accessories

241574 Connector Replacement Kit
Includes two junction box connectors and six rubber grommets.

114488 Air Solenoid Valve
3/8 npt (fbe) three-way, 24 volt has manual activation button.

115124 Pressure Switch
Lubricant inlet 1/4 npt(f).

244023

Level Indicator

244023 Level Indicator
Instruction manual 309200.

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Lubrication Systems
Installation / Piping Recommendations

Technical Information

Qualified Installers

Always use a qualified installer and ensure the installer follows the detailed instructions included with every Graco product.

1. Always use new pipe. Make certain that pipes are clean and free of rust and scale.

2. When cutting pipe remove burrs and chips that may damage dispense valves and meters.

3. Always flush the system with oil before attaching dispense valves and meters.

Air Lines

Main Line	Branch Line	Pump Model
3/4 in or 1 in ID pipe	3/8 in or 1/2 in ID pipe	Fast-Ball; Falcon; Fire-Ball;
3/4 in or 1 in ID pipe	1/2 in ID pipe	Fire-Ball

Fluid Lines

This information applies to typical automotive flow rate service requirements.

Chassis Grease Lubricant Supply Lines

Based upon 5000 psi maximum working pressure

Supply Line Length	Supply Pump	Hydraulic Supply Line Tubing	ASTM A53 or A106 Grade "B" - Seamless Pipe (3000 psi forged steel fittings)
Up to 50 feet	50:1 Fire-Ball 300	5/8" OD x .109" Wall Tube 50:1 Fire-Ball 425	1/2" Schedule 80
50 to 100 feet	50:1 Fire-Ball 300	5/8" OD x .109" Wall Tube 50:1 Fire-Ball 425	1" Schedule 160
100 to 200 feet	50:1 Fire-Ball 300	N/A	1-1/4" Schedule 160
100 to 200 feet	50:1 Fire-Ball 425	N/A	1-1/2" Schedule 160
200 feet and up	50:1 Fire-Ball 300 50:1 Fire-Ball 425	N/A	1-1/2" Schedule 160

Motor Oil, Gear Lube, or ATF Lubricant Supply Lines

Based upon 1000 psi maximum working pressure

Supply Line Length	Supply Pump	Hydraulic Supply Line Tubing	ASTM A53 Buttwelded Pipe (300 psi malleable fittings)
Up to 50 feet	5:1 Fire-Ball 300	5/8" OD x .049" Wall Tube	1/2" Schedule 40
Up to 50 feet	10:1 Fire-Ball 425	3/4" OD x .049" Wall Tube	3/4" Schedule 40
50 to 100 feet	5:1 Fire-Ball 300	3/4" OD x .049" Wall Tube	3/4" Schedule 40
50 to 100 feet	10:1 Fire-Ball 425	1" OD x .049" Wall Tube	1" Schedule 40
100 to 200 feet	5:1 Fire-Ball 300	1" OD x .049" Wall Tube	1" Schedule 40
100 to 200 feet	10:1 Fire-Ball 425	1-1/2" OD x .095" Wall Tube	1-1/4" Schedule 40
200 feet and up	5:1 Fire-Ball 300	1-1/2" OD x .095" Wall Tube	1-1/4" Schedule 40
200 feet and up	10:1 Fire-Ball 425	1-1/2" OD x .095" Wall Tube	1-1/4" Schedule 40

Warning

Some equipment contained in this Buyer's Guide is capable of producing high pressure. Misuse or misapplication of this equipment can cause component rupture, fire or explosion and result in serious bodily injury, including fluid injection or splashing in the eyes or on the skin. Never exceed the maximum working pressure of the lowest-rated component in the system. See the instruction manual included with the equipment for more detailed information.

Lubrication Systems
Installation / Piping Recommendations

Steel Tubing and Iron Pipe Information

Seamless Steel tubing is designated by its outside diameter (OD) and its wall thickness. While it is available in a wide range of sizes (3/8 in, 1/2 in, 5/8 in, 7/8 in, and 1 in OD) tubes are quite commonly used as fluid lines. Choice of wall thickness is practically unlimited and is governed by the working pressures encountered.

	Wall Thickness of Tubing	.025 in	.028 in	.032 in	.035 in	.042 in	.049 in	.058 in	.065 in	.072 in	.083 in	.095 in	.109 in	.125 in
Steel Tubing O.D	1/8 in	6000	6700	7680	8430	9920	11750	-----	-----	-----	-----	-----	-----	-----
	3/16 in	4000	4470	5100	5610	6750	7850	-----	-----	-----	-----	-----	-----	-----
	1/4 in	2980	3350	3830	4200	5040	5980	7000	7850	-----	-----	-----	-----	-----
	5/16 in	2410	2690	3080	3370	4040	4710	5610	6290	6950	8010	-----	-----	-----
	3/8 in	1990	2240	2560	2800	3360	3920	4660	5240	5790	6660	7640	8720	9990
	13/32 in	1845	2070	2360	2585	3100	3620	4285	4800	5320	6130	7015	8050	9235
	7/16 in	1715	1920	2190	2400	2880	3360	4000	4500	4960	5720	6550	7490	8580
	1/2 in	1490	1675	1920	2100	2520	2940	3500	3925	4340	5000	5720	6540	7500
	9/16 in	1330	1490	1705	1870	2240	2620	3110	3490	3860	4450	5090	5810	6660
	5/8 in	1200	1340	1535	1680	2020	2350	2800	3140	3470	4000	4580	5230	6000
	11/16 in	1090	1220	1395	1530	1830	2135	2530	2835	3140	3620	4145	4755	5455
	3/4 in	1000	1120	1280	1400	1640	1960	2320	2600	2880	3320	3800	4360	5000
	7/8 in	860	960	1090	1200	1440	1680	1985	2225	2465	2845	3255	3740	4285
	1 in	750	840	960	1050	1260	1470	1740	1950	2160	2490	2850	3270	3750
	11/8 in	665	747	854	935	1120	1310	1545	1735	1920	2215	2535	2910	3330

Note: The values above are based on an allowable fiber stress of 15,000 psi (1,034 bar). For approximate bursting pressures, multiply these values by a factor of 3.3.

Standard iron pipe is designated by its nominal inside diameter (ID), in 1/8 in, 1/4 in, 3/8 in, 1/2 in, 3/4 in, 1 in, 1-1/2 in, 2 in, 2-1/2 in, and 3 in, etc. increments. While errors in the early manufacturing of pipe have caused inconsistencies in the smaller pipe IDs, the size designations have still been retained. Pipe comes in three weights: standard; extra-heavy, and double extra-heavy, all having the the same outside diameter (OD). Cast steel fittings are recommended for extra-heavy pipe and forged steel fittings are recommended for double extra-heavy pipe.

	Nominal Diameter (inches)	**1/8 in**	**1/4 in**	**3/8 in**	**1/2 in**	**3/4 in**	**1 in**	**1-1/4 in**	**1-1/2 in**	**2 in**	**2-1/2 in**	**3 in**
Standard Pipe; Schedule 40	Actual OD (inches)	0.405	0.54	0.675	0.84	1.05	1.315	1.66	1.9	2.375	2.875	3.5
	Actual ID (inches)	0.269	0.364	0.493	0.622	0.824	1.049	1.38	1.61	2.067	2.469	3.068
	Inside area (sq. inches)	0.06	0.1	0.19	0.3	0.53	0.86	1.49	2.04	3.36	4.79	7.39
	Working Pressure (psi)	2820	2172	1797	1731	1434	1348	1124	1017	864	940	822
	U.S. gallons per lineal ft	0.003	0.005	0.01	0.016	0.028	0.045	0.077	0.106	0.174	0.248	0.383
	Ft of pipe containing 1 U.S. gal	333.7	185.1	100.8	63.33	36.12	22.21	12.87	9.45	5.74	4.02	2.59
	Weight (U.S. pounds) per foot	0.244	0.424	0.567	0.85	1.13	1.68	2.27	2.72	3.65	5.79	7.58

	Nominal Diameter (inches)	**1/8 in**	**1/4 in**	**3/8 in**	**1/2 in**	**3/4 in**	**1 in**	**1-1/4 in**	**1-1/2 in**	**2 in**	**2-1/2 in**	**3 in**
Schedule 80 Pipe	Actual OD (inches)	0.405	0.54	0.675	0.84	1.05	1.315	1.66	1.9	2.375	2.875	3.5
	Actual ID (inches)	0.215	0.302	0.423	0.546	0.742	0.957	1.278	1.5	1.939	2.323	2.9
	Inside area (sq. inches)	0.036	0.071	0.141	0.231	0.425	0.71	1.28	1.75	3	4.24	6.6
	Working Pressure (psi)	3977	2937	2488	2333	1954	1814	1533	1403	1222	1280	1142
	U.S. gallons per lineal ft	0.0018	0.0037	0.008	0.012	0.022	0.0375	0.0675	0.09	0.15	0.225	0.345
	Ft of pipe containing 1 U.S. gal	534.7	266.5	133.3	82	44.4	26.6	14.8	11.1	6.66	4.4	2.9
	Weight (U.S. pounds) per foot	0.314	0.538	0.738	1.09	1.47	2.2	3	3.6	5	7.7	10.25

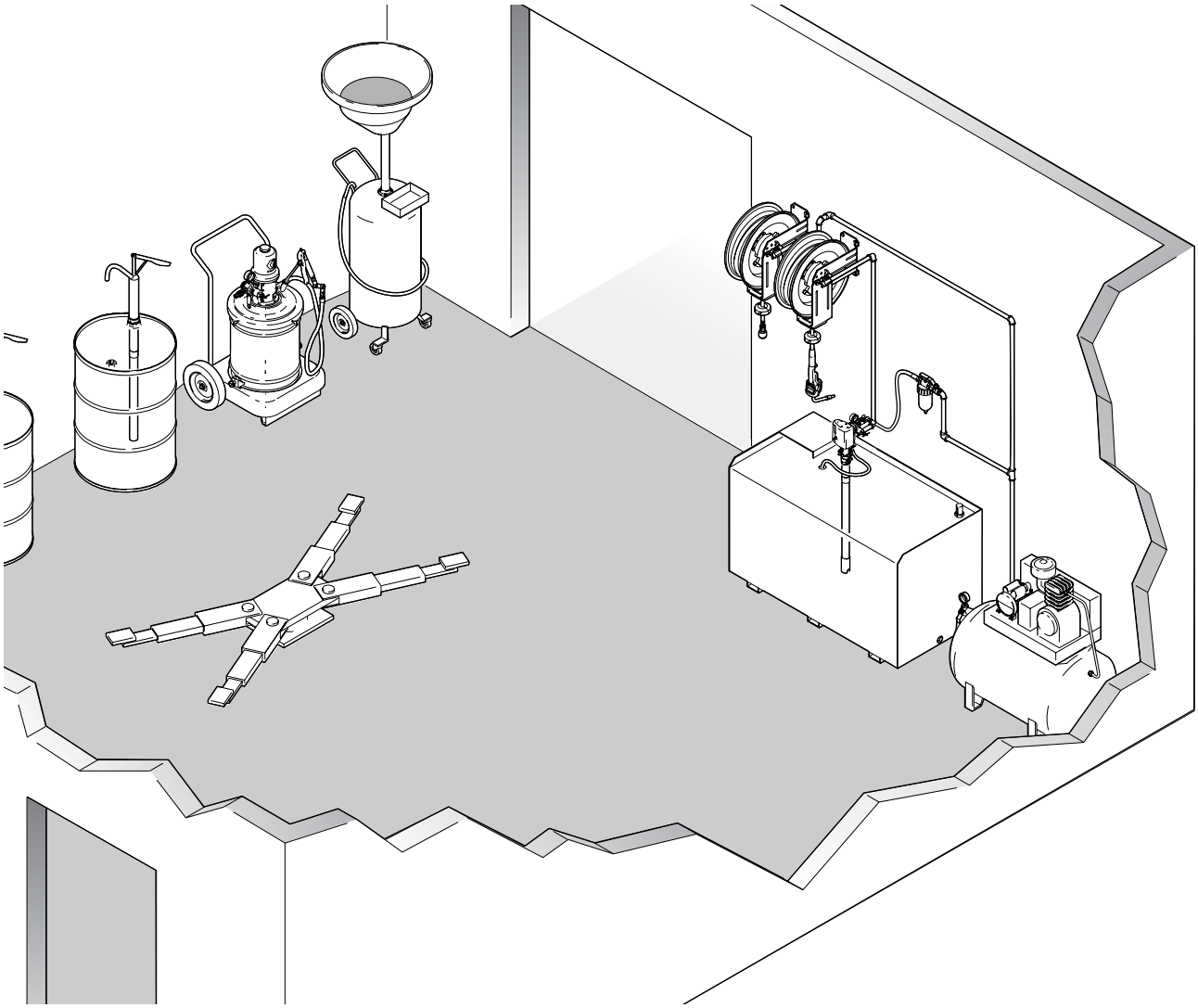
	Nominal Diameter (inches)	**1/2 in**	**3/4 in**	**1 in**	**1-1/4 in**	**1-1/2 in**	**2 in**	**2-1/2 in**	**3 in**
Schedule 100 Pipe	Actual OD (inches)	0.84	1.05	1.315	1.66	1.9	2.375	2.875	3.5
	Actual ID (inches)	0.464	0.612	0.815	1.16	1.338	1.687	2.125	2.624
	Inside area (sq. inches)	0.05	0.148	0.282	0.63	0.95	1.77	2.46	4.15
	Working Pressure (psi)	4666	3910	3629	3068	2807	2560	2446	2285
	U.S. gallons per lineal ft	0.0026	0.0075	0.015	0.033	0.049	0.092	0.127	0.216
	Ft of pipe containing 1 U.S. gal	381.8	133.2	66.6	30.3	20.2	10.8	7.84	4.53
	Weight (U.S. pounds) per foot	1.71	2.44	3.66	5.21	6.4	9.03	13.7	18.6

Designing A System

Information Needed to Design a System

1. Flow Rate Desired at Dispense Point
2. Fluid Type
3. # of Dispense Points for Each Fluid
4. Line Size and Diameter Length
5. Hose Reel Length and Hose Diameter
6. Unmetered or Metered Dispense Valve and Inlet Size

See page 159 for details.



Industrial Lubrication Equipment Application Request

Fax completed form to 800-533-9656

Date:

DISTRIBUTOR:		Contact:
Address:		Phone:
City, State, Zip		Fax:

GRACO REPRESENTATIVE:		Contact:
Address:		Phone:
City, State, Zip		Fax:

END USER:		Contact:
Address:		Phone:
City, State, Zip		Fax:

MATERIAL SUPPLIER:		Contact:
Address:		Phone:
City, State, Zip		Fax:

PLEASE SUPPLY THE MATERIAL SUPPLIER TECHNICAL DATA SHEET FOR THE SERVICE FLUID.

Container Size:	5 gallon ☐	55 gallon, closed ☐	55 gallon, open ☐	Bulk ☐, Size:	Other:

Pump Mounting:	Wall ☐	Floor ☐	Cart ☐	Stand ☐	Stand Pipe ☐	Drum ☐	Ram ☐	Other:

Fluid Intake:	Siphon ☐	Immersed ☐	Ram Feed ☐	Pressure ☐	Gravity ☐	Other:

Spraying:	AS ☐ AL ☐	Manual: ☐ Automatic: ☐	Flow Rate/Gun:	Width of Pattern (in.):
	Qty. of guns:	Spray Pressure:	Heated °F °C	Longest run length:

Transfer:	Flow Rate:	Pipe/Hose Length/Size:	Total run length:

Dispense:	Flow Rate/Valve:	Reel Hose Length/Size:	# valves open at one time:
	Longest run length:		

Metering:	Shot Size:	Shots/Min.	Accuracy ± %	Time/Shot:

Grease		**Oil**
Material Name:		Material Name:
Material Number:		Material Number
NLGI Number:		Oil Weight
Specific Gravity:		Viscosity (cp) @ Temperature:
Water Based: ☐		Specific Gravity:
Synthetic: ☐		
Fillers: ☐ Type:		

Quotation & Pricing:	Firm Quote: Yes/No	Project Budgeted: Yes/No	Budgetary Quote: Yes/No	
	Probability of Purchase: %	Acceptable Price Range: $		

Competition:	Competition: Yes/No	Who (model):

Project Date:	Order Award Date:	Installation Date:
	Deliver Date or Lead Time Required:	

Other Application Information or Instructions

Fast Oil Change
Typical System Layout

Typical System for the Fast Oil Change Application

This drawing is only a guide to provide a typical equipment range and system layout. Consult an authorized Graco representative before selecting or installing any Graco lubrication equipment or designing a lubrication system.

System Components

A Motor Oil
Fire-Ball 300, 5:1 oil pump
3/8 in air regulator with gauge
3/8 in air filter
3/8 in lubricator
Thermal relief kit
Low-level cut-off
Bleed-type air shut-off valve
Hose and fitting kit
Fluid shut-off valve

B Transmission Fluid
Fire-Ball 300, 5:1 oil pump
3/8 in air regulator with gauge
3/8 in air filter
3/8 in lubricator
Thermal relief kit
Low-level cut-off
Bleed-type air shut-off valve
Hose and fitting kit
Fluid cut-off valve

C Grease
Fire-Ball 300, 50:1 grease pump
Drum cover
Follower plate
3/8 in air regulator with gauge
3/8 in air filter
Bleed-type air shut-off valve
Hose and fitting kit
Fluid shut-off valve

D Gear Oil
Fire-Ball 300, 5:1 gear oil pump
3/8 in air regulator with gauge
3/8 in air filter
3/8 in lubricator
Thermal relief kit
Low-level cut-off
Bleed-type air shut-off valve
Hose and fitting kit
Fluid shut-off valve

E Anti-Freeze
1:1 diaphragm pump
3/8 in air regulator with gauge
3/8 in air filter
Thermal relief kit
Bleed-type air shut-off valve
Hose and fitting kit
Suction hose and kit
Wall-mounting bracket
Fluid shut-off valve

F Windshield Washer Fluid
1:1 diaphragm pump
3/8 in air regulator with gauge
3/8 in air filter
Thermal relief kit
Fluid cut-off
Air cut-off valve
Hose and Fitting kit
Suction hose and kit
Wall-mounting bracket

G Air Compressor
3/4 in master air line filter
3/4 in master air line lubricator
3/4 in air line shut-off valve

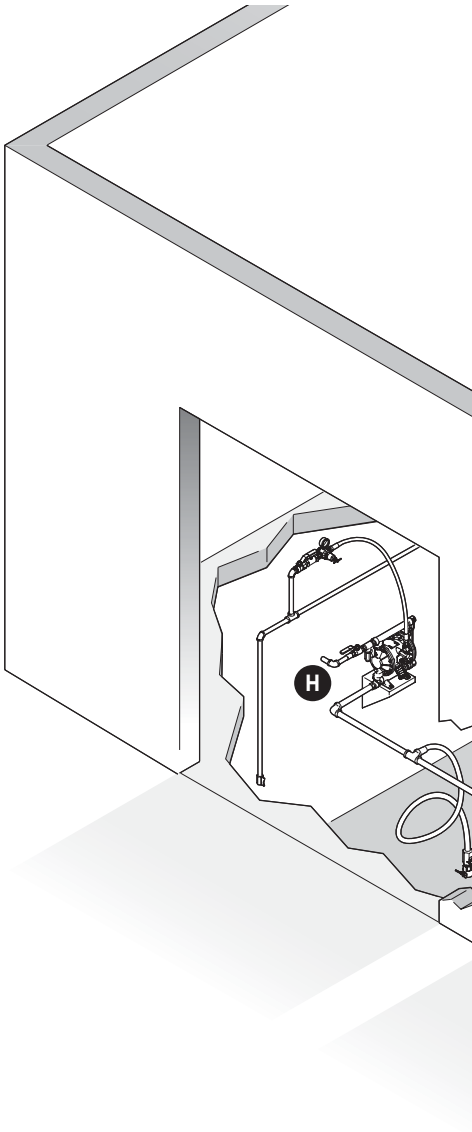
H Used-Oil Evacuation System
1:1 diaphragm pump
3/8 in air regulator with gauge
3/8 in air filter
Bleed-type air shut-off valve
Hose and fitting kit
Drain hose kit
Wall-mounting bracket

I Port-Evac

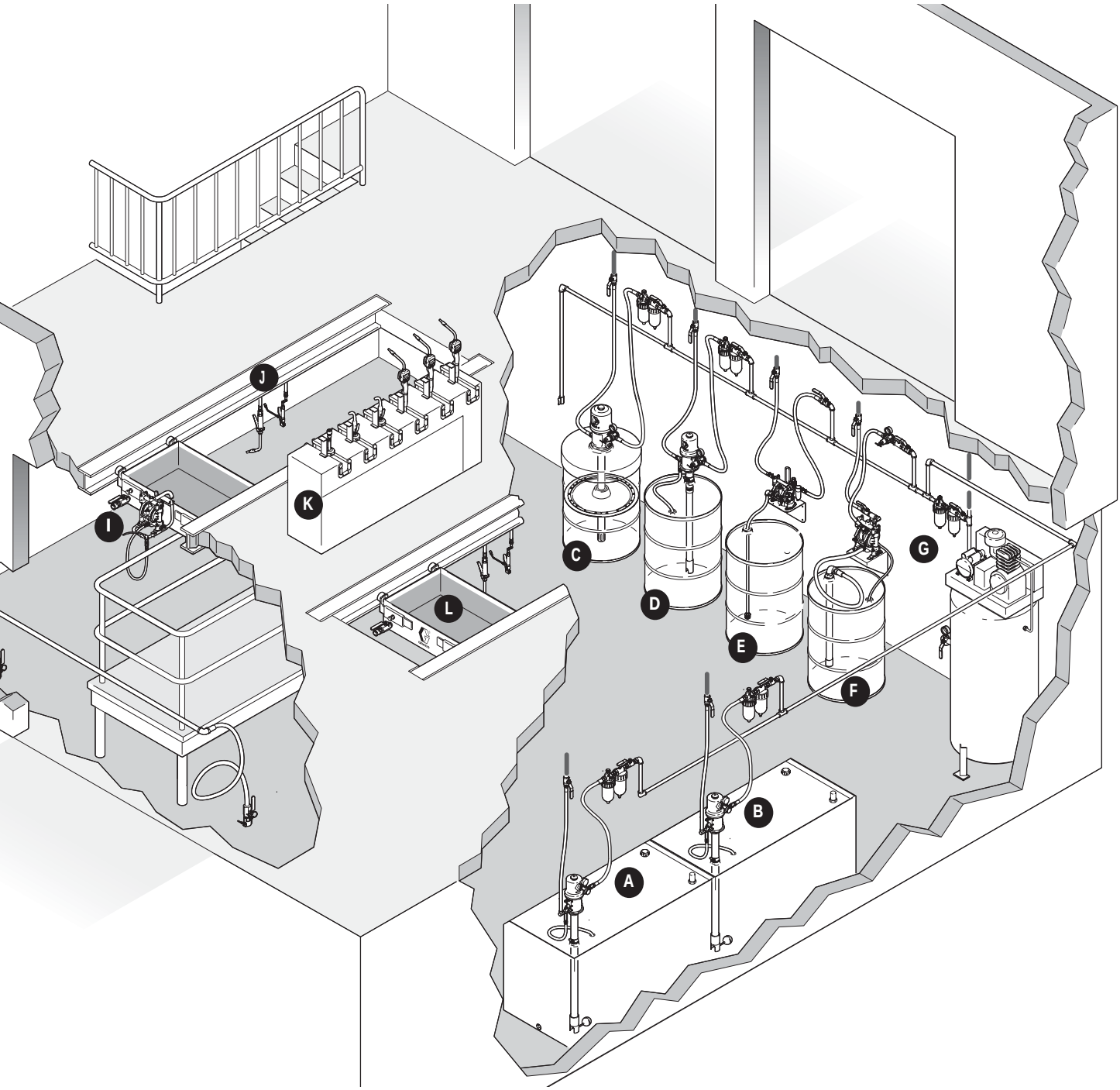
J Pit Dispense Valves
Grease Dispense Valve with z-swivel
Gear Oil Dispense Valve
Fluid shut-off valves
Hoses

K Dispense Console
Dispense valves:
air/water, windshield wash,
anti-freeze, motor oil and
automatic transmission fluid
dispense valves

L Rolling Used Oil Receiver



Note: Order miscellaneous connection hardware separately.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Automotive Dealership
Typical System Layout

Typical System for Automotive Dealership Application

This drawing is only a guide to provide a typical equipment range and system layout. Consult an authorized Graco representative before selecting or installing any Graco lubrication equipment or designing a lubrication system.

System Components

A Motor Oil
Fire-Ball 300, 5:1 oil pump
3/8 in air regulator with gauge
3/8 in air filter
3/8 in lubricator
Thermal relief kit
Low-level cut-off
Bleed-type shut-off valve
Hose and fitting kit
Fluid shut-off valve

B Transmission Fluid
Fire-Ball 300, 5:1 oil pump
3/8 in air regulator with gauge
3/8 in air filter
3/8 in lubricator
Thermal relief kit
Low-level cut-off
Bleed-type shut-off valve
Hose and fitting kit
Fluid shut-off valve

C Grease
Fire-Ball 300, 50:1 grease pump
Drum cover
Follower plate
3/8 in air regulator with gauge
3/8 in air filter
3/8 in lubricator
Low-level cut-off
Bleed-type shut-off valve
Hose and fitting kit

D Gear Oil
Fire-Ball 300, 5:1 oil pump
3/8 in air regulator with gauge
3/8 in air filter
3/8 in lubricator
Thermal relief kit
Low-level cut-off
Bleed-type shut-off valve
Hose and fitting kit
Fluid shut-off valve

E Anti-Freeze
1:1 diaphragm pump
3/8 in air regulator with gauge
3/8 in air filter
Thermal relief kit
Air cut-off valve
Hose and fitting kit
Suction hose and kit
Wall-mounting bracket
Fluid shut-off valve

F Windshield Washer Fluid
1:1 diaphragm pump
3/8 in air regulator with gauge
3/8 in air filter
Thermal relief kit
Bleed-type air shut-off valve
Hose and fitting kit
Suction hose kit
Wall-mounting bracket
Fluid shut-off valve

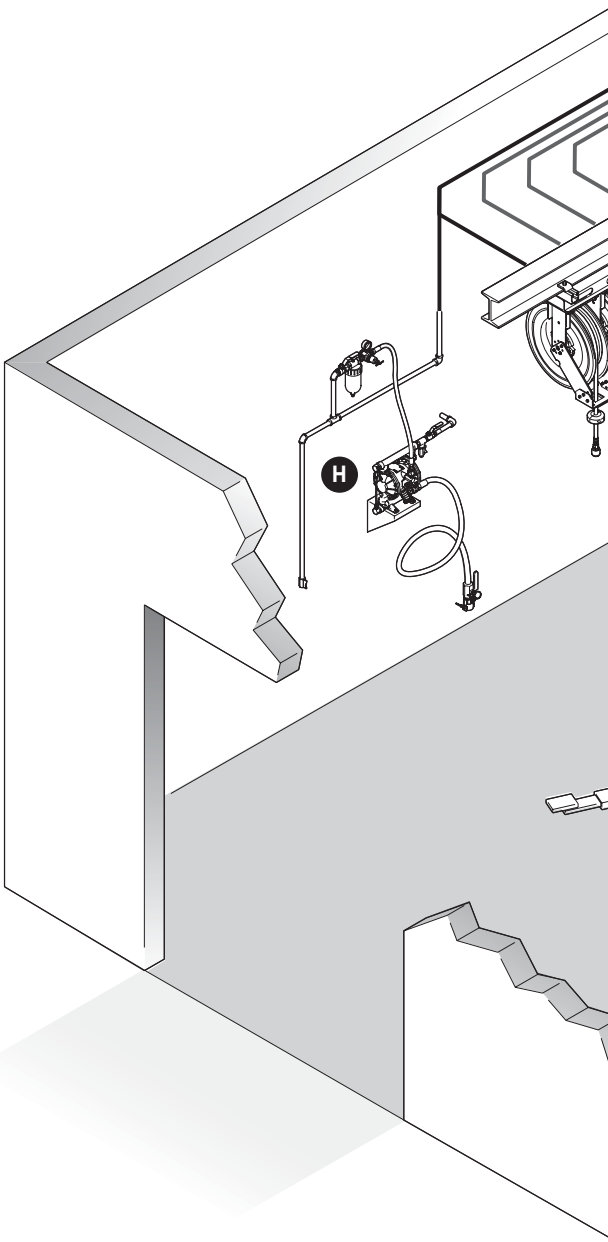
G Air Compressor
3/4 in master air line filter
3/4 in master air line lubricator
3/4 in air line shut-off valve

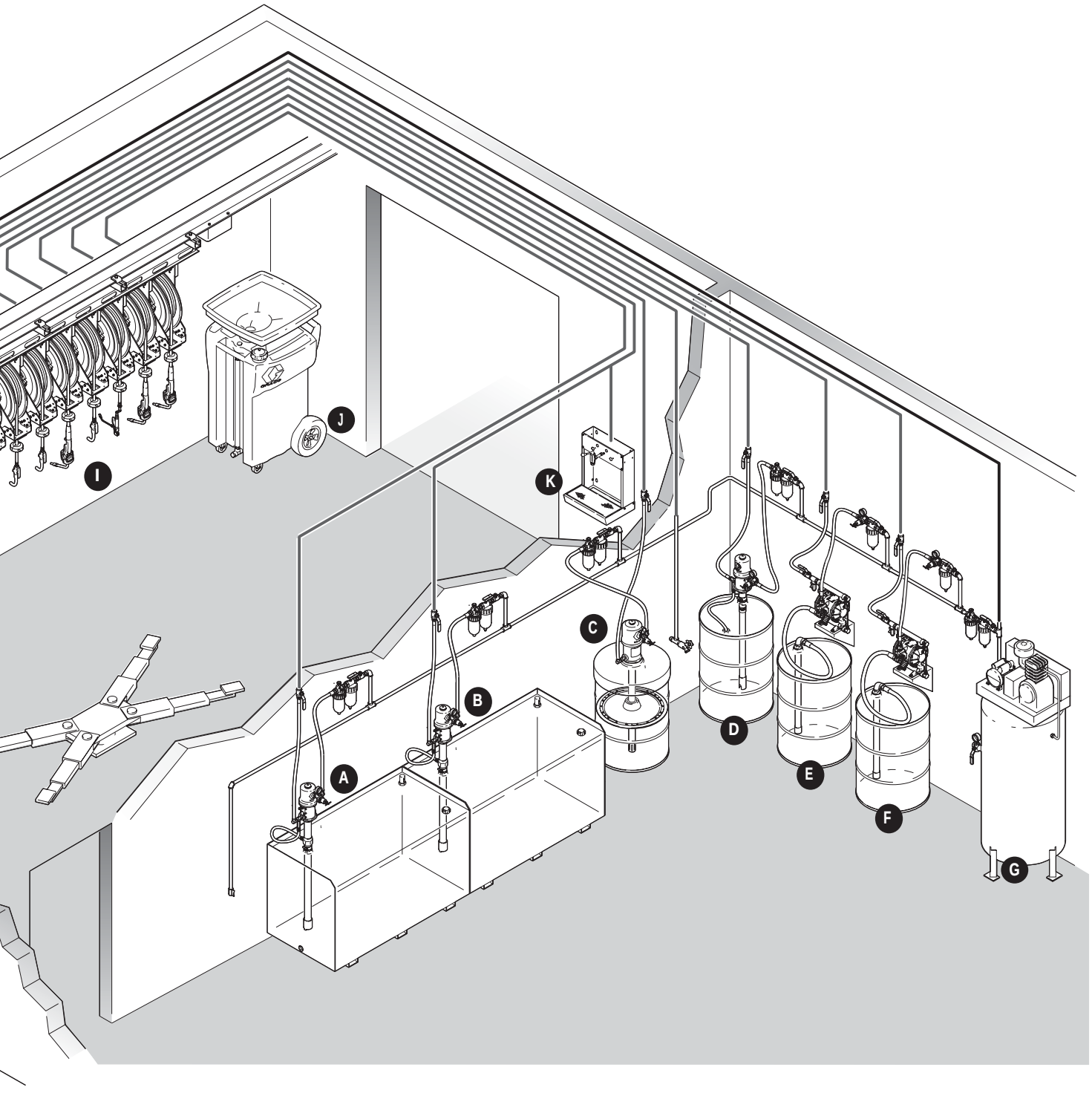
H Used-Oil Evacuation System
1:1 diaphragm pump
3/8 in air regulator with gauge
3/8 in air filter
Bleed-type air shut-off valve
Hose and fitting kit
Drain hose kit
Wall-mounting bracket

I Overhead Reel Bank
Hose reels
Reel mounting channels
Dispense valves:
air/water, windshield wash, gear oil, anti-freeze,
grease, motor oil and
automatic transmission fluid
dispense valves

J Oil King Used-Oil Receiver

K Oil Dispense Bar

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Auto Service Shop
Typical System Layout

Typical System for Lower-Volume Automotive Application

This drawing is only a guide to provide a typical equipment range and system layout. Consult an authorized Graco representative before selecting or installing any Graco lubrication equipment or designing a lubrication system.

System Components

A **Gear Oil**
Hand-operated lever pump

B **Transmission Fluid**
Hand-operated lever pump

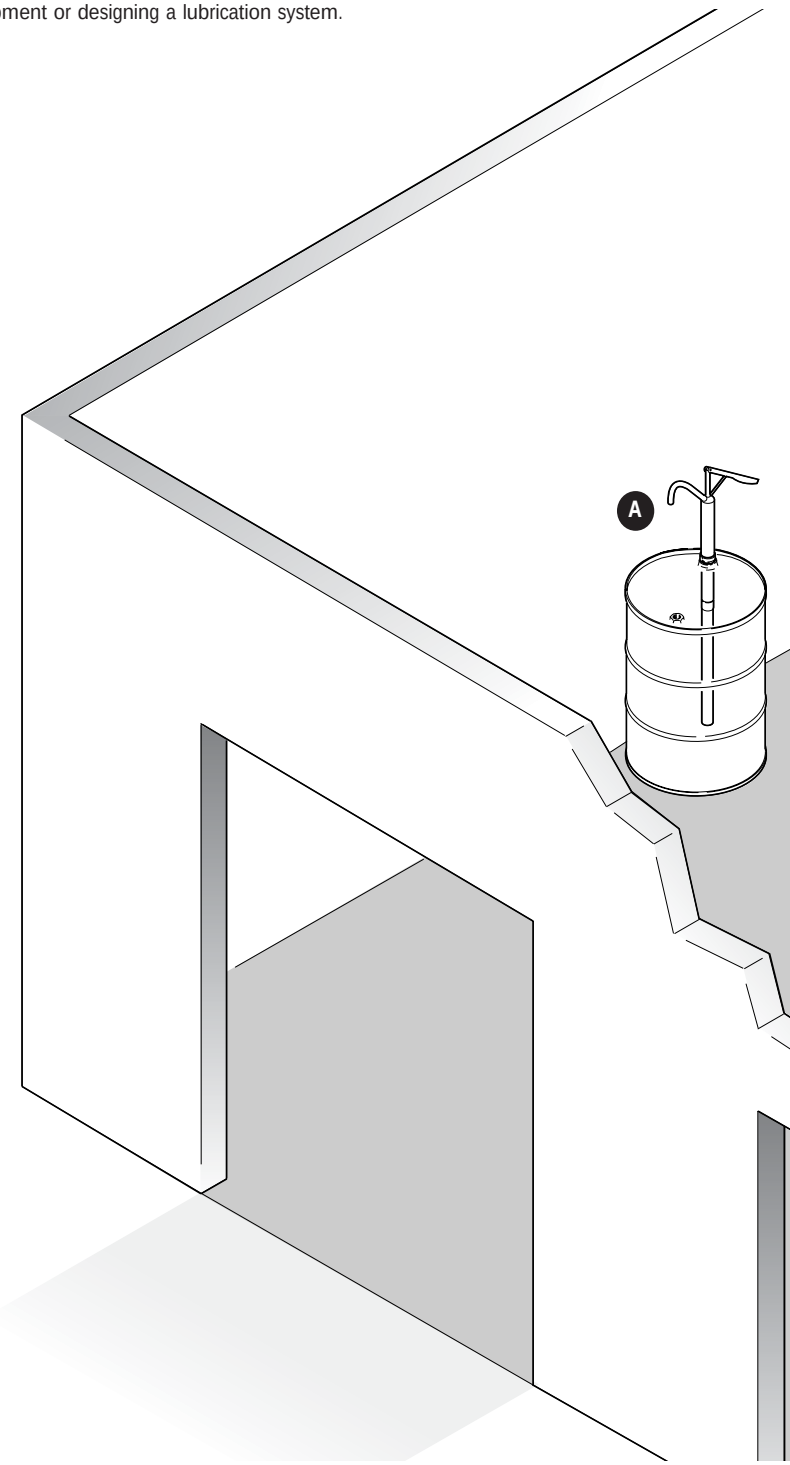
C **Grease (120-lb/55kg)**
Fire-Ball 300, 50:1 portable grease system
3/8 in air regulator with gauge,
hose and dispense kit

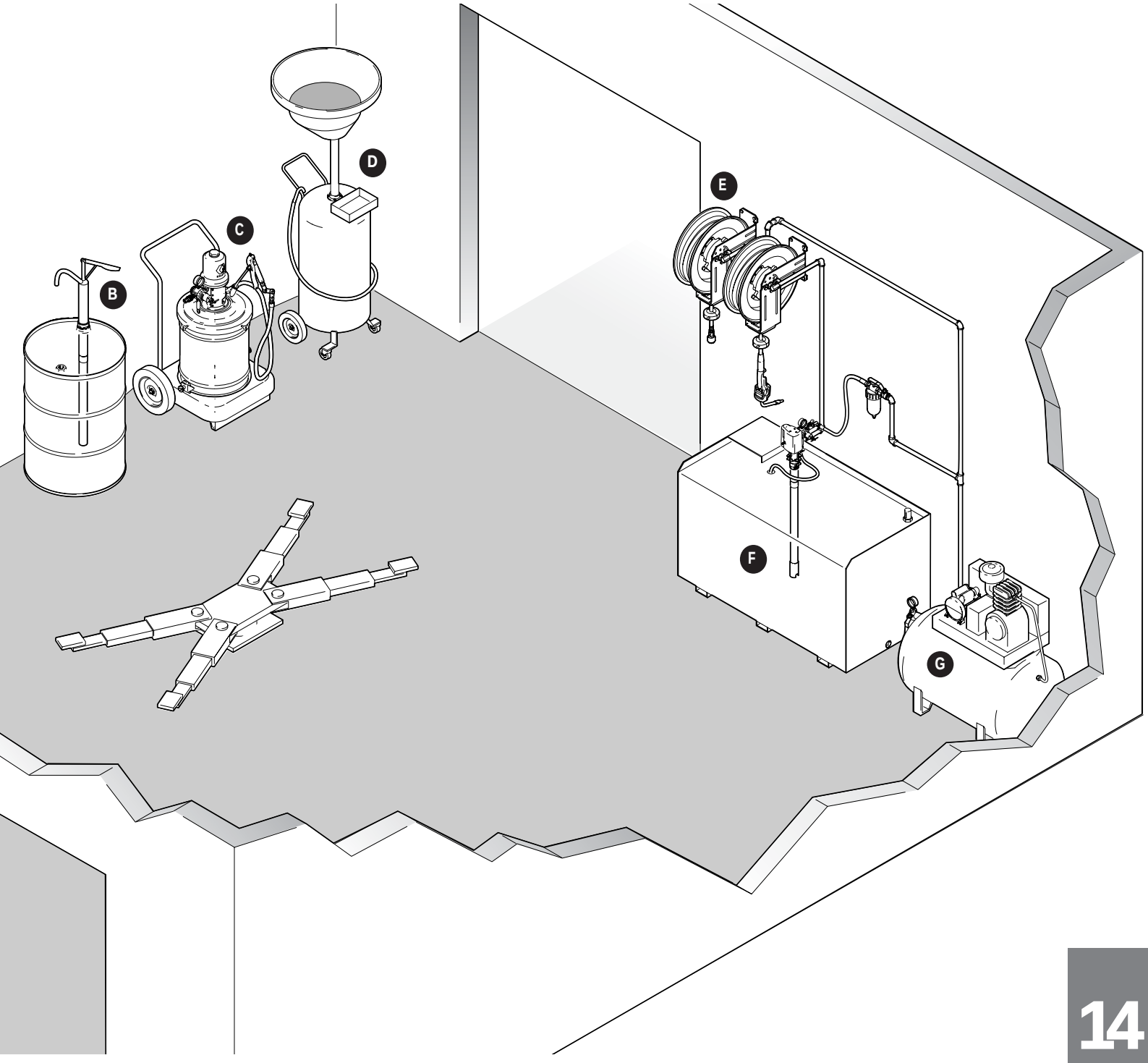
D **Waste-Oil Receiver**
Oil Ace Pressurized Oil Drain

E **Wall-Mounted Hose Reels**
250 Series air and motor oil hose reels
EM5 electronic oil dispense meter
water bibb, shut-off valves

F **Motor Oil**
Mini Fire-Ball 225 pump for motor oil
3/8 in regulator with gauge
3/8 in air filter
Thermal relief kit
Fluid shut-off valve
Bleed-type air shut-off valve
Hose and fitting kit

G **Air Compressor**
3/4 in master air line filter
3/4 in master air line lubricator
3/4 in air line shut-off valve

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Fleet Applications
Typical System Layout

Typical System for the Truck and Fleet Maintenance Application

This drawing is only a guide to provide a typical equipment range and system layout. Consult an authorized Graco representative before selecting or installing any Graco lubrication equipment or designing a lubrication system.

System Components

A Motor Oil
Fire-Ball 425, 10:1 oil pump
1/2 in air regulator with gauge
1/2 in air filter
1/2 in lubricator
Thermal relief kit
Low-level cut-off
Bleed-type air shut-off valve
Hose and fitting kit
Fluid shut-off

B Transmission Fluid
Fire-Ball 425, 10:1 oil pump
1/2 in air regulator with gauge
1/2 in air filter
1/2 in lubricator
Thermal relief kit
Low-level cut-off
Bleed-type air shut-off valve
Hose and fitting kit
Fluid shut-off

C Grease
Fire-Ball 425, 50:1 grease pump
Topper-inductor system
1/2 in air regulator with gauge
1/2 in air filter
1/2 in lubricator
Bleed-type air shut-off valve
Hose and fitting kit

D Gear Oil
Fire-Ball 425, 10:1 oil pump
1/2 in air regulator with gauge
1/2 in air filter
Thermal relief kit
Low-level cut-off
Bleed-type air shut-off valve
Hose and Fitting kit
Fluid shut-off

E Anti-Freeze
1:1 diaphragm pump
3/8 in air regulator with gauge
3/8 in air filter
Thermal relief kit
Bleed-type air shut-off
Hose and fitting kit
Suction hose kit
Wall-mounting bracket
Fluid shut-off valve

F Windshield Washer Fluid
1:1 diaphragm pump
3/8 in air regulator with gauge
3/8 in air filter
Thermal relief kit
Bleed-type air shut-off valve
Hose and fitting kit
Suction hose kit
Wall-mounting bracket
Fluid shut-off valve

G Air Compressor
3/4 in master air line filter
3/4 in master air line lubricator
3/4 in air line shut-off valve

H Used-Oil Evacuation System
1:1 diaphragm pump
3/8 in air regulator with gauge
3/8 in air filter
Bleed-type air shut-off
Hose and fitting kit
Wall-mounting bracket

I Overhead Reel Bank
Hose reels
Reel mounting channels
Dispense valves:
air/water, windshield wash, gear oil, anti-freeze, grease, motor oil and automatic transmission fluid dispense valves

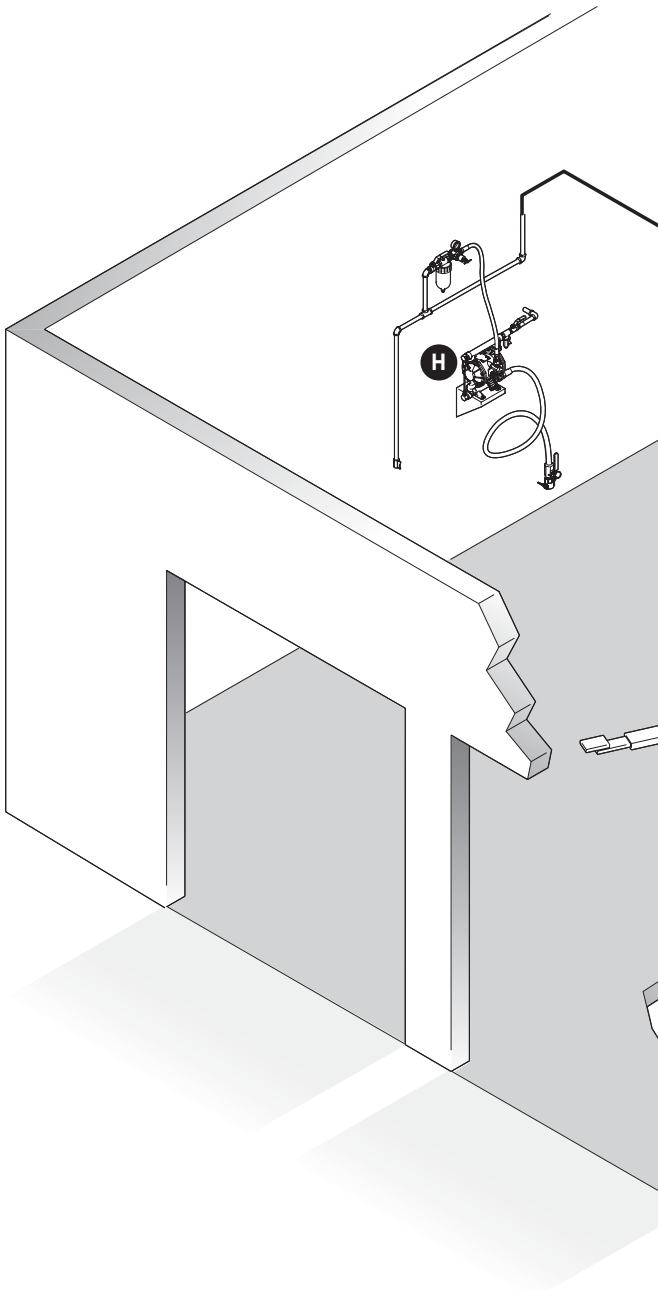
J Drain Hose Kit

K Rolling Used-Oil Receiver

L Pit Dispense Valves
Grease Dispense Valve with z-swivel
Gear Oil Dispense Valve
Hoses
Fluid shut-off valves

M Rolling Truck Drain

N Oil Dispense Bar



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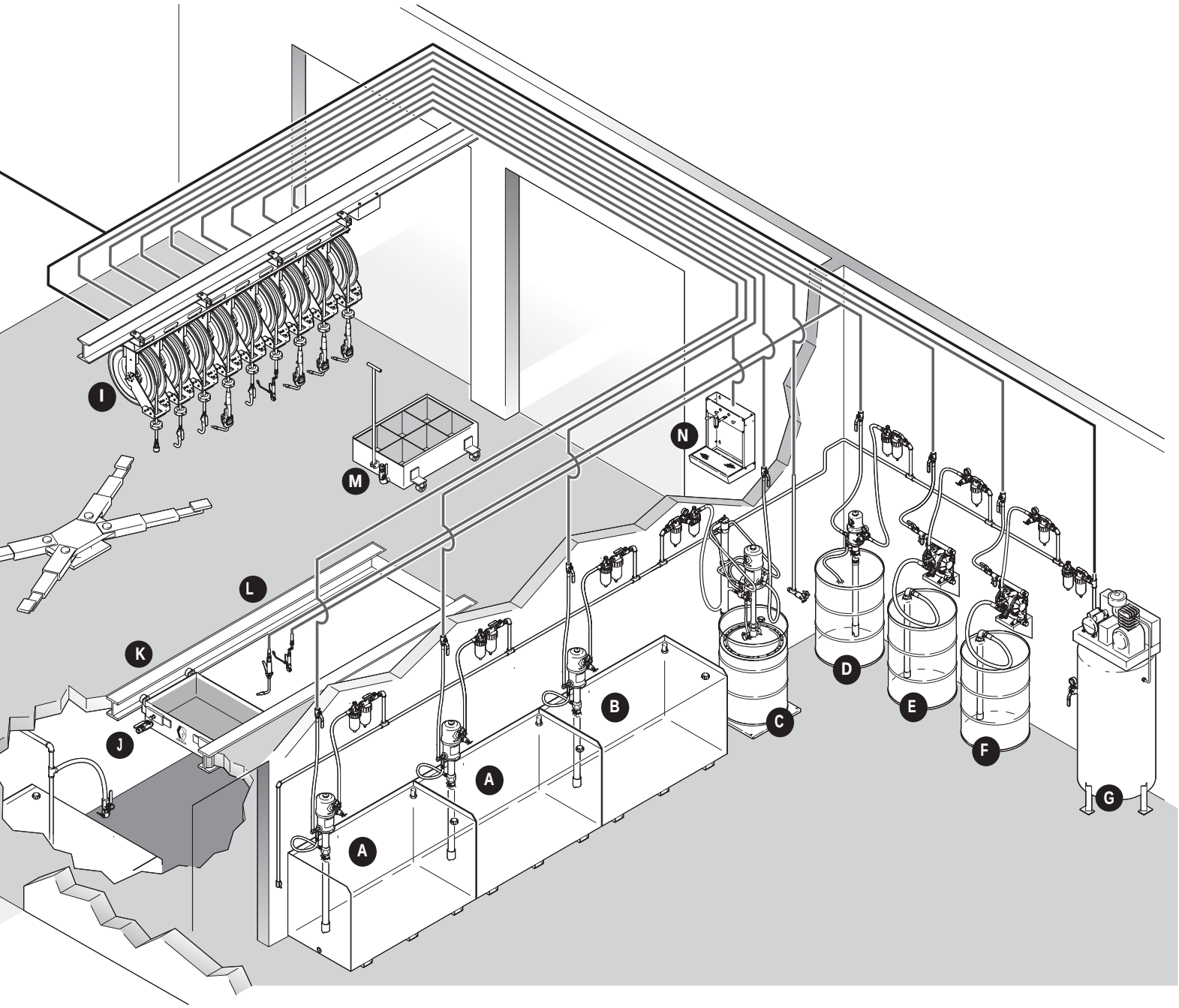
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The Graco Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance or structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

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Graco offers an extended warranty for the following products at no additional cost. All other terms and conditions of the Graco warranty shall apply.

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Fire-Ball 425 Pumps: grease	30 years
Fire-Ball 425 Pumps: oil	10 years
Fire-Ball 225 Pumps: oil	5 years
Falcon Pumps: grease	5 years
Diaphragm Pumps	15 years air valve center section; 5 years pump
250 & 500 Series Hose Reel	3 years
Electronic Fluid Meters	2 years
Matrix	2 years

These extended warranties reflect Graco's high degree of confidence in the quality and consistency of our products.

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ABOUT GRACO

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Founded in 1926, Graco is a world leader in fluid handling systems and components. Graco products move, measure, control, dispense and apply a wide range of fluids and viscous materials used in vehicle lubrication, commercial and industrial settings.

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